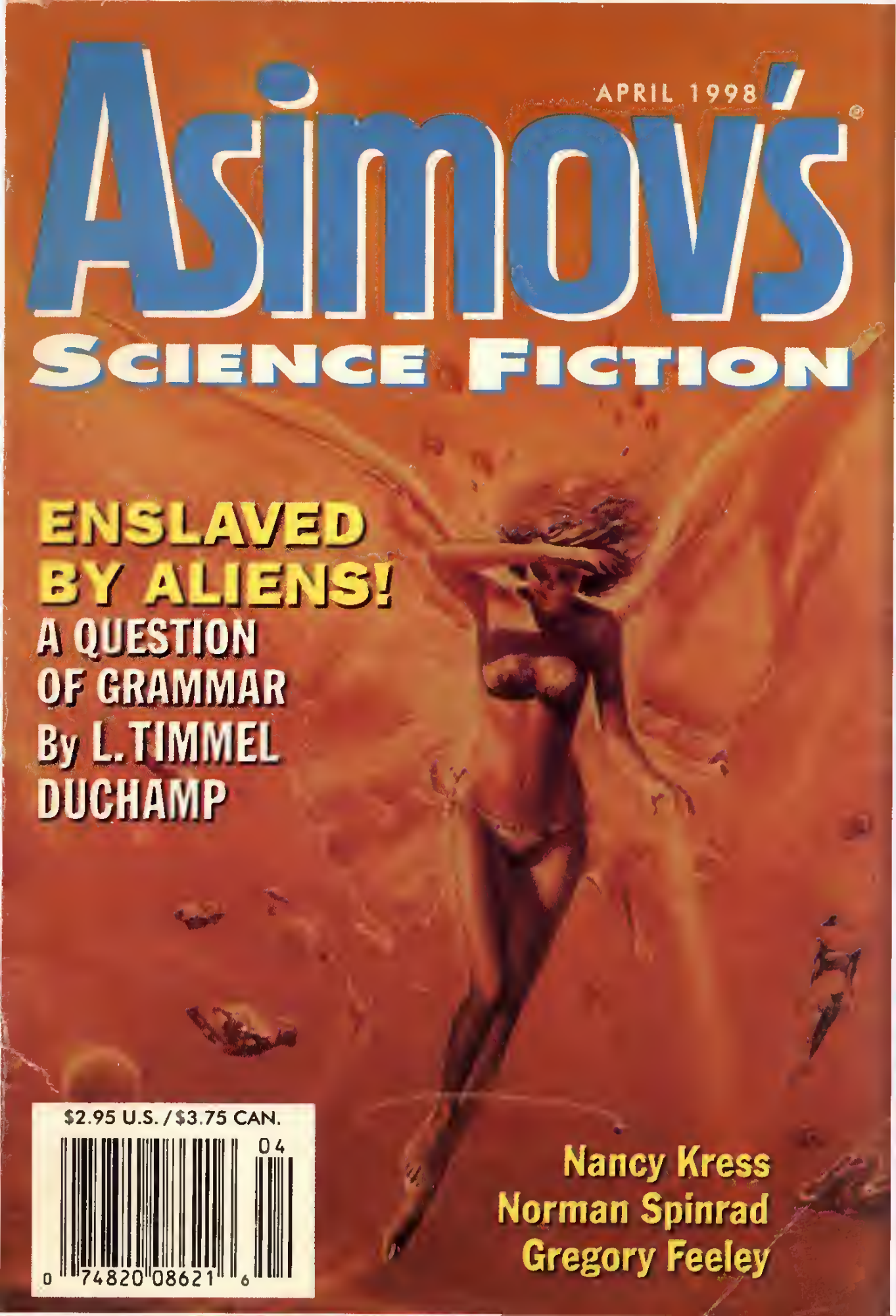
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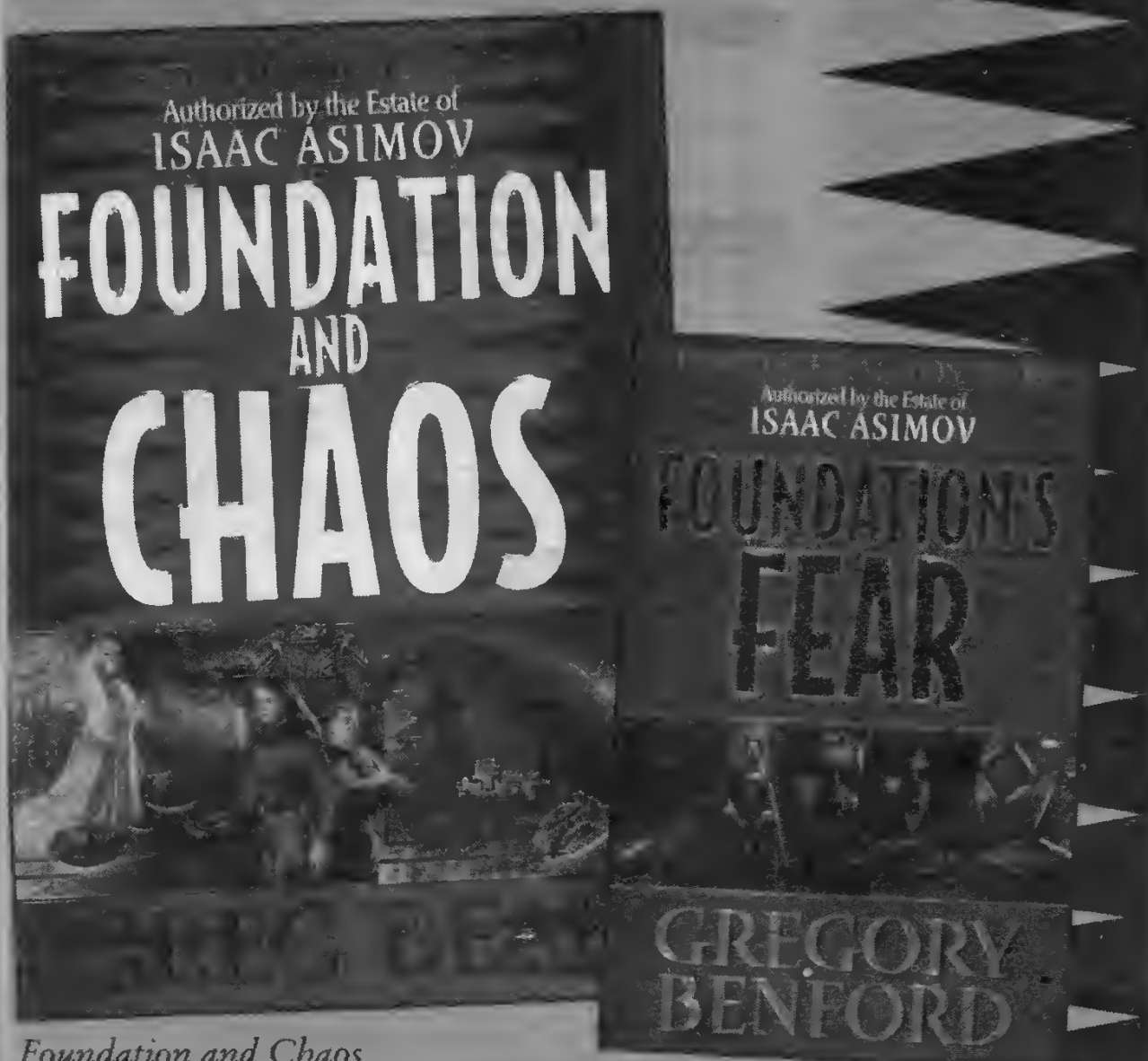
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10



106

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NOVELLA

106 A Question of Grammor ____ L. Timmel Duchomp

NOVELETTES

10 Steamship Soldier on the Information Front ____ Nancy Kress
38 Auschwitz and the Rectification of History ____ Eliot Fintushel
66 Animae Celestes ____ Gregory Feeley

SHORT STORIES

60 The Year of the Mouse ____ Norman Spinrad
100 The Value of Objects ____ Daniel H. Jeffers

POETRY

36 Curse of the Super-Hero's Wife ____ Bruce Boston
59 The Moon Does Not Envy the Earth ____ Steven Utley
105 Dollar Sign ____ W. Gregory Stewart
149 One Minuscule Grain of Fact Grows the Giant Crystalline Entity of Conjecture ____ Kondis Elliot

DEPARTMENTS

4 Reflections: Voyage to the Moon (Part 1) ____ Robert Silverberg
150 On Books ____ Peter Heck
160 The SF Conventional Calendar ____ Erwin S. Strauss

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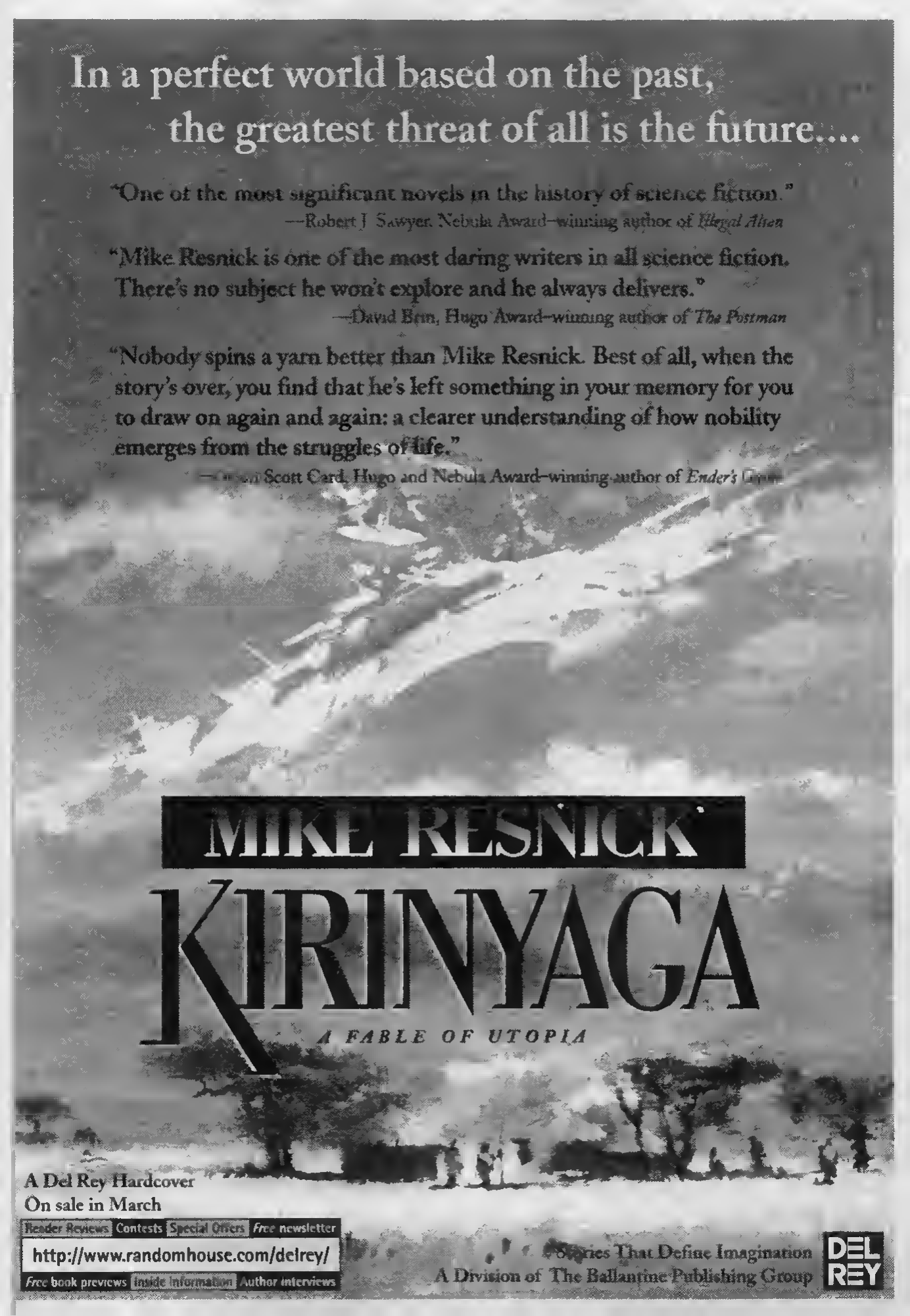
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VOYAGE TO THE FAR SIDE OF THE MOON (Part 1)

On the whole, I'd rather stay home. I love my house and garden, my cats, my books, my 1972-vintage waterbed, my familiar routines. But for all my reluctance to set foot outside the front door some dire streak of irrepressible curiosity keeps impelling me to wander toward remote corners of the world two or three times a year. This time the destination was East Germany, as a result of an invitation from an SF fan group, the Freundeskreis Leipzig Science Fiction, to speak before groups of readers in Leipzig and nearby Dresden. The trip would turn out to be a little like a voyage to the moon—the far side of the moon, at that.

Because I've spent relatively little time in Germany, though, and Karen had never visited it at all, we added two cities to the journey on our own: Munich, because that was where our plane from San Francisco would land and because everyone said it was a charming city, and Berlin, the newly unified once and future capital of Germany, in order to check out that city's sinister past and fascinatingly turbulent present.

Munich was indeed charming and jolly. Berlin was, as advertised, both fascinating and turbulent. But the really illuminating part of the trip was to come in Leipzig and Dresden, where we were able to examine at close range the effects that the forty years of life in a Communist people's republic had had on the citizenry, and how they were dealing with the problems that the return to Western economic practices had created for them. I also would experience the curious sensation of being guest of honor at a science fiction gathering where hardly anyone had heard of me a few years before, where even such folk as Heinlein and Asimov and Clarke were known largely by hearsay, and the big-name writers were people like Carlos Rasch and Erik Simon and Wolf Weitbrecht.

Berlin gave us our first hints of what the former East Germany would be like. It is, of course, right in the middle of the chunk of Germany that had been turned by its Russian occupiers into the Deutsche Demokratische Republik, and for four decades Berlin's western half had been an island of gaudy free enterprise amidst a sea of Stalinist bleakness. The DDR had finally found it necessary in 1961 to erect the infamous Berlin Wall to keep its citizens from yielding to the appeal of life on the capitalist side of town.

Our first afternoon in Berlin

was spent in bright, lively, and cheerfully materialist West Berlin; but the next morning we set out by cab from our glittering modern hotel and headed east, and the urban texture began abruptly to change. In ten minutes we were in the vast construction area of Potsdamer Platz. Once the busiest plaza in Berlin, Potsdamer Platz had been leveled in the war (Hitler's headquarters buildings had been situated nearby) and in Cold War days it had become a bleak, empty no-man's-land bordered along its western edge by the terrible wall. Now the wall is gone and the great open space of the Platz is the site of the most frantic high-rise construction boom the world has ever seen. Dozens of corporate headquarters buildings are under way—Sony, Mercedes Benz, etc., etc.—and a forest of towering cranes, at least two dozen of them, rises far into the sky, visible for miles around.

Beyond all that we entered the broad expanse of Unter der Linden, once Berlin's most famous boulevard, and abruptly we began to feel the strangeness of entering a country that had spent forty years suspended in time, suffering from ideological and economic strangulation, before abruptly being spliced into Europe's most prosperous nation. Unter der Linden was now a strangely silent avenue bordered on both sides by the hideous architectural relics of the DDR, a few surviving Nazi buildings (massive, ominous) and the grand and monumental turn-of-

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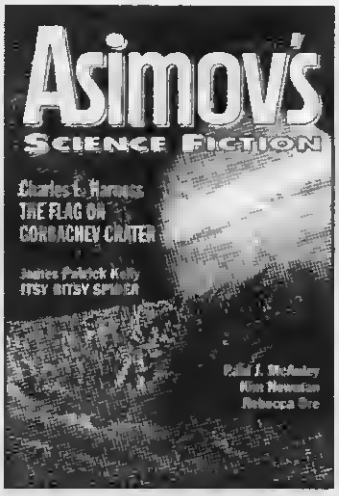
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the-century public buildings of the Kaiser's reign. The shadow of the totalitarian past was omnipresent, brooding ghosts lurking at every window. The buildings were grimy, somber, pockmarked still with World War II damage. Traffic was light. There were plenty of pedestrians, but they, seven years after unification, still had the stunned look of people who had just awakened from a long nightmare. Even so, amidst all the signs of decades-long decay we could see, at the intersections, signs of new construction on every side street, shining department stores and hotels and office buildings arising by the dozens.

We were struck, again and again, by the overlay of one terrible period of history on another. Behind the drabness of the DDR years lay the horror of the Nazi era, invisible but still oppressively real. For East Germany World War II is the all-determining factor. If Hitler had not provided the Soviets with a good reason to invade his country, the drab and sinister DDR would never have existed.

At last we were at our destination: the famed Museum Island, home of some of the world's great archaeological treasures. The treasures were still there—the great altar of the temple of Pergamon, the Ishtar Gate of Babylon, and the rest; but the buildings were sadly dilapidated, with the fifty-year-old scars of war still marking their sooty façades, and to our amazement an elevated train track ran right down the middle of the island just outside the museum windows, making the exhibits tremble every five minutes as noisy trains rumbled through. (Without stopping; there's no train stop at this popular site. The DDR had a knack for such wondrous incompetence.) On our way back from the island, on foot, we peered at the site of the former wall (bleakness on one side, West Berlin's vigor on the other), hunted down Checkpoint Charlie (its one surviving warning about not crossing the line all but hidden in the midst of the new construction), found a few fragments of the wall itself still standing—a chilling memorial. And also the ponderous, repellently somber block-long building that had been the home of Marshall Goering's Air Ministry, and then the offices of the DDR cabinet ministers, and after that the headquarters of the German bureau in charge of selling off the DDR's state-owned industries.

A few days later we were on to Dresden, by train, past miles of abandoned factories (East German products, manufactured for captive markets in the Communist bloc, proved uncompetitive in the western world) and silent, nearly lifeless towns (not only did millions flee to the west before the wall went up, but the East German birthrate has been minimal for decades). But there was plenty of traffic in Dresden, all right. Its corps of Marxist traffic engineers had devised some sort of diabolic system for perpetual gridlock, in-



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volving red lights that take hours to change, single-lane roads that intersect in maddening ways, and bewildering congeries of one-way streets forever leading you away from your destination. And the drivers are weirdly passive, as though still expecting the DDR security police to jump on them if they were to display any sign of excessive initiative in driving. Our hotel was hardly more than a short walk from the Dresden railway station, but the cab trip took half an hour in the bizarre tangle.

Dresden itself was once one of Europe's most beautiful cities. It was utterly destroyed by the Allied firebombing of February 1945, thousands of people killed, wondrous churches and palaces and museums reduced to rubble. (This was, you may recall, the central event of Kurt Vonnegut's *Slaughterhouse-Five.*) The old heart of the city has now been painstakingly reconstructed, stone by stone, an astonishing replica of its eighteenth-century self; beyond the city center rises the new Dresden, bland steel-and-glass high-rises that make no impact, good or bad, on the eye. (The only one that offends is the Communist-era Palace of Culture, a tacky modernist barn of a building that the DDR authorities plunked down in the midst of the reconstructed baroque buildings of the city center in 1969.)

The Dresden municipal museum shows before-and-after photographs of the 1945 firestorm. I am not very warlike by nature and loathe destruction and loss of any

sort, and I have had some experience with fiercely destructive firestorms virtually on my own doorstep. As we toured the museum, conscious of all that had happened here, I could not help but find compassion rising in myself for the horrors that this city and its inhabitants had suffered in 1945. You would have to be made of stone not to feel it. But it was a bewildering sensation. I am old enough to remember the war and the sins of Nazi Germany quite clearly; and I am Jewish, after all. The last thing I would have expected was to find myself grieving for Dresden.

No more than twenty feet from the photographs of firebombed Dresden, though, was a case containing Nazi artifacts, such as the yellow *Jude* armbands that Dresden's Jewish citizens had been forced to wear before they were deported to the death camps. The sight of those things restored my balance. I still felt just as sorry for those innocent people of Dresden who had suffered along with their Nazi neighbors in the firebombing, and just as much regret for the beauty that had perished here. But I reminded myself now that the destruction of Dresden had been no arbitrary act of the capricious gods, nor even the doing of gleefully malevolent enemies. Real evil on an astounding scale had been committed in Nazi Germany, and punishment for that evil had been duly inflicted by an outraged world, and if some innocent people and some beautiful buildings had had to suffer for the sake of destroying the monstrous regime of the Third Reich, so be it. My head was clear again, after that dizzying little moment of pity. It was too bad that lovely Dresden had to be destroyed, yes, but it was Germany's vile Nazi rulers who had invited the bombing. What I had been feeling, for that one moment, at least, was nothing other than sympathy for the devil.

More about the German trip next month. ●

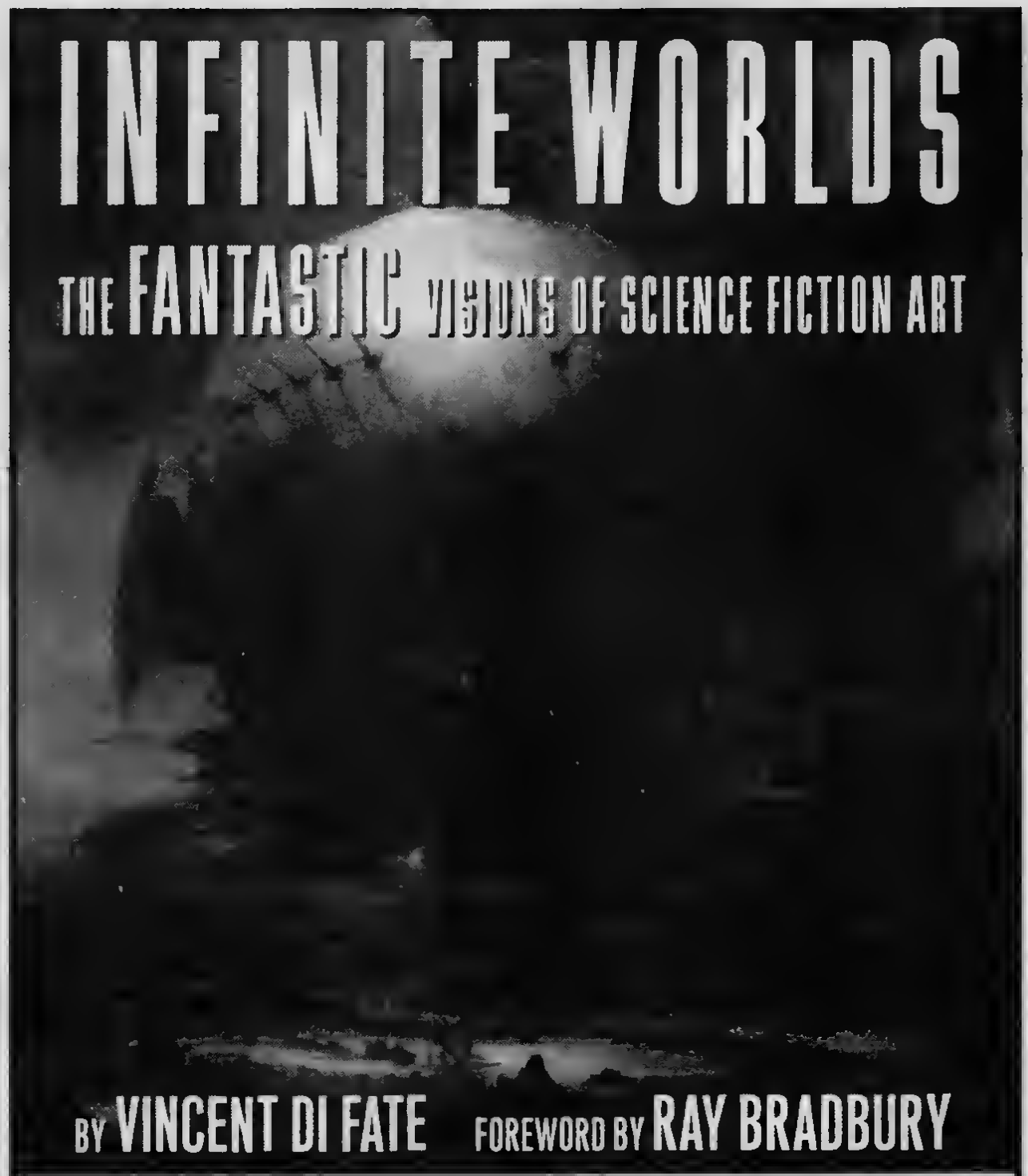
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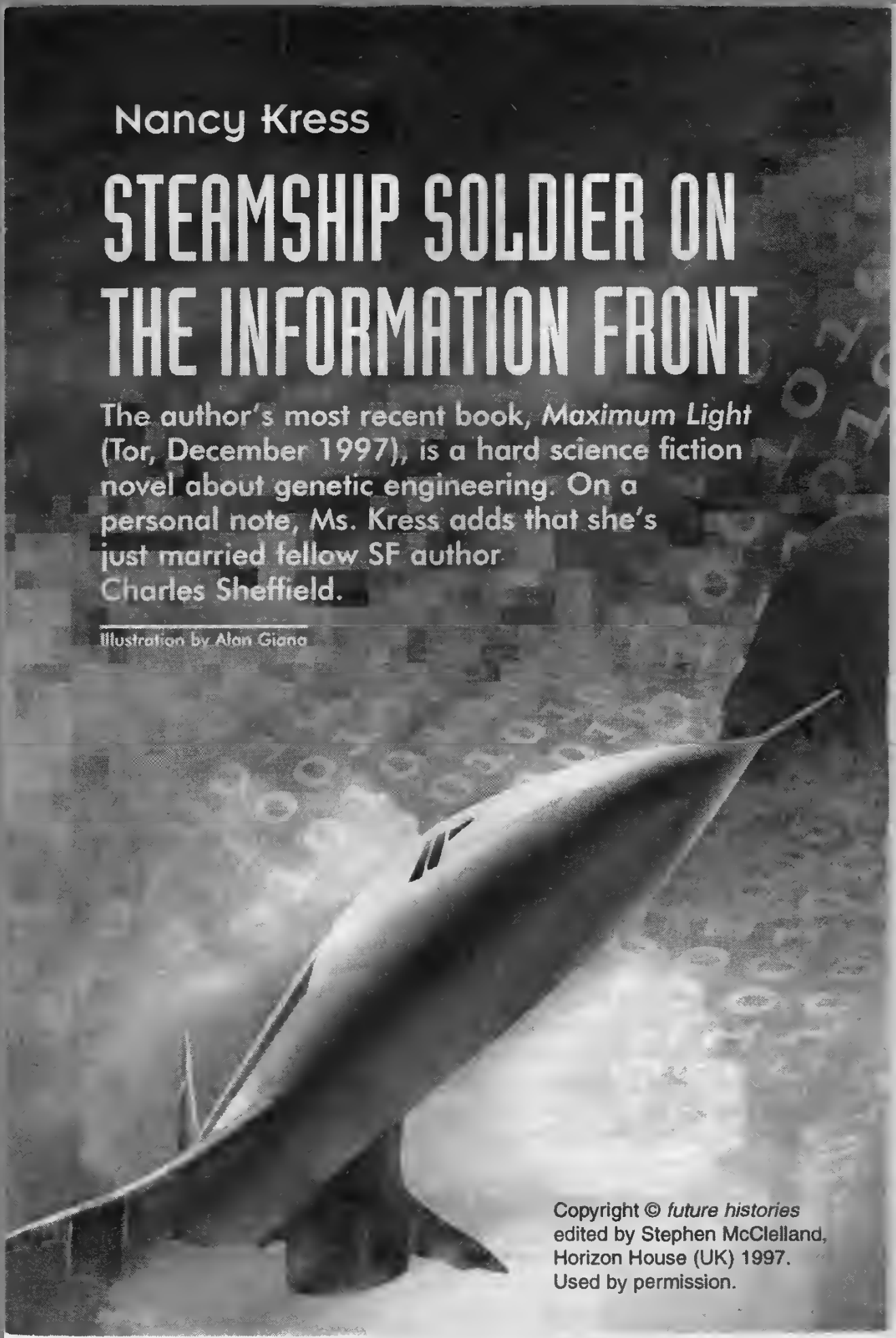
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Nancy Kress

STEAMSHIP SOLDIER ON THE INFORMATION FRONT

The author's most recent book, *Maximum Light* (Tor, December 1997), is a hard science fiction novel about genetic engineering. On a personal note, Ms. Kress adds that she's just married fellow SF author Charles Sheffield.

Illustration by Alan Giana



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CHEF-BOY-RDD

Just before the plane touched down at Logan, Allan Haller gave one last check to the PID on the back of his tie-tack. Good. Intense vibration in the Cathy icon, superintense in Suzette, and even Charlie showed acceptable oscillation. No need to contact any of them, that would save time. Patti and Jon, too—their icons shivered and thrilled at nearly top speed. And three minutes till landing.

"My, look at what you have there," said his seatmate pleasantly. A well-rounded grandmotherly sort, she'd been trying to engage him in conversation since La Guardia. "What sort of gadget is that, might I ask?"

No, Allan almost said, because what ground could possibly be gained? But then he looked at her again. Expensive jacket, good haircut, Gucci bag. Certainly money, but probably not entrepreneurial—rich old women tended to safe and stodgy investments. Still, what could he lose? Two and a half minutes until landing, and speculative capital, as he well knew, was sometimes found in very odd places.

"It's a PID—a personal-icon display," he said to Grandma Money. "It shows the level of electronic interaction going on with my family—my wife Cathy here, my son and daughter on these two icons—and two of my chief business associates. Each of them is wired with a WIPE, a 'weak interactive personal electronic field' in various items of clothing that communicate with each other through a faint current sent through their bodies. Then all interactions with other electronic fields in their vicinity are registered in their WIPEs and sent wireless to each other's PIDs. I can tell, for instance, by how much the Cathy icon is vibrating that she's probably working at her terminal—lots of data going through her icon. Suzette is probably playing tennis—see, her icon is superoscillating the way WIPE fields do when they're experiencing fast-motion physical interference, and Charlie here—"

"You send electric current through your children's bodies?" Grandma Money sounded horrified.

"It isn't dange—"

"All the *time?* And then you Big-Brother them? All the *time?*"

Allan flipped down the tie-tack. Well, it had been worth a skirmish, as long as the time talking to her would have been downtime anyway. With a slight bump, the plane made contact with the runway.

"Don't they . . . well, I don't mean to be rude, but doesn't your family object to—"

But Allan was already moving down the aisle toward the jetway, from the forward seat he'd had booked precisely because it was the first to disembark. By the time the other passengers were reaching for their overhead luggage, he was already in the airport, moving fast, talking into his phone.

"Jon, what have you got?"

"A third prospect. Out in Newton; the car company will do the max-efficient route. The company is Figgy Pudding, the product is NewsSort. It

goes through the whole Net looking for matches to key words, then compares the news items with ones the user has liked in the past and pre-selects for him—the usual statistical-algorithm gig. But they're claiming 93 percent success rate."

"Pretty good, if it's true."

"Worth a skirmish," Jon said, in New York. "That's all in Boston." He hung up.

Allan didn't break stride. "Figgy Pudding"—the cutesy name meant the talent was old, left over from the generation that could name a computer after a fruit and a communications language after a hot beverage. Still, some of those geezer geeks still had it. Worth a skirmish.

"Your car is waiting at these coordinates," his wristwatch said, displaying them along with a route map of Logan. "Thank you for using the Micro Global Positioning System."

Allan tacked through the crowd, past the fast-food kiosks, the public terminal booths, the VR parlors crammed with kids parked there while parents waited for flights. The driver, who had of course been tracking Allan through MGPS, already had the car door opened, the schedule revisions from Jon, the max-effish route. No words were necessary. Allan sank into the back seat and unfolded his meshNet.

This was Haller Ventures' latest investment to come to market. Allan loved it. A light, flexible cloth meshed with optic-fiber wires, it could be folded almost as small as a handkerchief. Yet it could receive as much data as any other dumb terminal in existence, *and* display it in more varied, complex configurations. Fast, powerful, keyed to both Allan's voice and to his chosen tactile commands for max effish, fully flexible in interacting with his PID and just about every other info-device, the meshNet was everything high-tech should be. It was going to make everyone connected with Haller Ventures rich.

Richer.

"Jon message," Allan said to the meshNet. "Display." And there was the information about Figgy Pudding: stock offerings, annual reports, inside run-downs put together and run through the Haller investment algorithms with Jon's usual efficiency. Nobody on the information front could recon better than Jon, unless it was Allan himself.

Carefully he studied the Figgy Pudding data. Looking good, looking very good.

"Five minutes until your first scheduled stop," his wristwatch said. A second later, the phone buzzed, then automatically transferred the call to the meshNet once it verified that the meshNet was unfolded. Cathy's icon appeared on the soft metallic surface.

"Cathy message," Allan said. The driver, curious, craned his gaze into the rearview mirror, but Allan ignored him. Definitely no ground to be gained there.

"Hey, love," Cathy's voice said. "Schedule change."

"Give it to me," Allan said, one eye still on the Figgy Pudding projections.

"Suzette made it. She's in for the Denver Preteen Semi-Final Skating Championship!"

"That's great!" Allan said. Damn, but he had great kids. Although Charlie . . ."I'll send her congratulations."

"Good. But she needs to leave Tuesday, on a nine-twenty A.M. plane. I have to be in court in Albuquerque on the Darlington case. Can you see her off at the airport?"

"Just a sec, hon." Allan called up the latest version of his schedule. "No can do. Patti's got me in Brussels from Monday night to Tuesday afternoon, with a stop at a London biotech on the hop home."

"Okay," Cathy said cheerfully. She was always cheerful; it was one of the reasons Allan was glad she was his wife. "I'll get a driver for her, and Mrs. Canning can see her off. Consider it covered. Are we still on for dinner and hanky-panky Wednesday?"

"Let me check . . . yes, it looks good. Five o'clock at the Chicago Plaza."

"I'll be there," Cathy said. "Oh, and give Charlie a call, will you? Today?"

"What's with Charlie?"

"Same thing," Cathy said, and for just a moment her cheerfulness faltered.

"Okay," Allan said. "Don't worry."

"You on your way to Novation?" Cathy of course received constant updates of his schedule, as he did of hers. Although she had fewer updates; even consulting attorneys as good as she was sometimes stayed in the same city for as long as three days. "Novation is the biorobot company, isn't it?"

"Yeah," Allan said. "Patti's pushing it pretty strong. But frankly, I don't have much faith in radical tech that makes this many extravagant claims. Promise the moon, deliver a rusty asteroid. I don't expect to be impressed."

"That's my man. Make 'em work for it. Love you."

"Love you, too," Allan said. The Cathy icon vanished from his meshNet.

"Two minutes until your first scheduled stop," his watch said.

Perfect.

Allan was wrong. He might not have expected to be impressed with Novation, but, almost against his will, he was.

As soon as he entered the unprepossessing concrete-block building, he could feel the data rush. Vibrating, racing, dancing. Whatever made a place blaze on the very edge of the information front, this place had it.

His contact entered the lobby just as Allan did. On top of the moves. She was an Indian woman in her late thirties, dressed in khaki slacks

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and a red shirt. All her movements were quick and light. Her black eyes shone with intelligence.

"Allan. I'm Skaka Gupta, Chief Scientist at Novation." Although of course Allan already knew that, plus everything relevant about her career, and she knew that he knew. "Welcome to our Biorobotics Unit."

"Thank you."

"Would you like a max-effish print-out of our current status?" A courtesy only; Novation's official profile would have been supplied to his firm yesterday. With an update this morning, if anything had changed overnight. And she'd know he'd prefer the figures and projections put together by his own people, in which the official profile was only one factor.

"No, thank you," Allan smiled. "But I am very eager to see your work directly."

"Then let's do that." She smiled back, completely sure of herself. Or of her work. Allan hoped it was of her work; he could sniff genuine success here. It smelled like money.

"Let me babble about the basics," Skaka said, "and you jump in with questions when you want to. We're passing through the biolab now, where we build the robots. Or, rather, start them growing."

Behind a glass wall stood rows of sterile counters, each monitored by automated equipment. A lone technician, dressed in white scrubs and mask, worked at a far counter. Allan said, "Let me test my understanding here. Your robot bodies are basic mass-ordered cylinders, with electro-field intercommunication, elevation-climbing limbs, and the usual sensors."

"That's right. We'll see them in a minute—they look like upended tin cans with four skinny clumsy legs and two skinny clumsy arms. But their processing units are entirely innovative. Each circuit board you see here, in each clear box, is being grown. We start with textured silicon plate etched with logic circuits, and then seed them with fetal neurons, grown on synthetic peptides. The fetal tissue used comes from different sources. The result is that even though the circuit scaffolds are the same, the neurons spin out different axons and dendrites. And since fetal brains always produce more neurons than they ultimately need, different ones atrophy on different boards. Each processor ends up different, and so the robots are subtly different too."

Allan studied the quiet, orderly lab. Skaka merely waited. Finally he said, "You're not the only company exploring this technique."

"No, of course not. But we've developed significant new variations—significant by several orders of magnitude. Proprietary, of course, until you've bought in."

Until, not *if.* Allan liked that.

"The proof of just how different our techniques are lies right ahead. This way to the primate house."

"Monkeys?" Allan said, startled. This had *not* been in the pre-reading.

Skaka, walking briskly, grinned over her shoulder. "P-r-i-m-e E-i-g-h-t House. It's a joke. Currently we have eight robots in each of two different stages of development. Both groups are in learning environments modeled on the closed-system forests once used with chimps. Follow me."

She led him out of the lab, down a long windowless corridor. Halfway, Allan's tie-tack beeped twice.

"Excuse me, Skaka, is the men's room—"

"Right through that door."

Inside, Allan flipped over his tie tack. The PID icon for Charlie had stopped vibrating completely. Immediately Allan phoned his son.

"Charlie? Where are you?"

"What do you mean, where am I? It's Friday, right? I'm at school."

"In . . ."

"In Aspen."

"Why aren't you in Denver?"

"Not this week, Dad, remember?"

Allan hadn't. Mrs. Canning's tutorial schedule for the kids' real-time educational experiences was complex, although of course Allan could have accessed it on his meshNet. Maybe he should have. But Charlie's physical location wasn't the issue.

"What are you doing in Aspen, son? Right now?"

"Nothing."

Allan pushed down his annoyance. Also his concern. Charlie—so handsome, so smart, twelve years old—spent an awful lot of time doing nothing. Just sitting in one room or another, staring into space. It wasn't normal. He should be out playing soccer, exploring the Net, teasing girls, racing bikes. Even reading would be more productive than this passive staring into nothing.

Allan said, "Where's Mrs. Canning? Why is she letting you do nothing? We don't pay her for that, you know."

"She thinks I'm writing my essay about the archeological dig we did in the desert."

"And why aren't you writing it?"

"I will . . . look, Dad, I gotta go now. See you next week. Love you."

"But Charlie—"

The phone went dead.

Should he call back? When Charlie got like this, he often didn't answer. Got like *what?* What was wrong with a kid who just turned himself off and sat, like a lump of bacon fat?

Nothing. Nothing was wrong with his son.

"Allan? Everything all right?" Skaka, rapping discreetly on the men's room door. Christ, how long had Allan been staring at the motionless Charlie icon on his PID? Too long. The schedule would be all shot to hell.

"Fine," he said, striding into the corridor. "Sorry. Now let's see the Prime-Eight house."

"You've never seen data like this," Skaka promised, and strode faster to make up for the lost time.

He never had seen data like this.

Each of the two identical "learning environments" was huge, two point three acres, circled by a clear plastic wall, and furnished with gray platforms at various heights and angles, steps and ramps and potholes, mimi-mazes and obstacles that could be reconfigured from outside the enclosures. The environments looked like monochromatic miniature-golf courses that had undergone an earthquake. In the first enclosure were eight of the tin-can robots, moving slowly and ponderously over the crazed terrain. Each was painted with a bright logo: "Campbell's Tomorrow Soup," "Chef-Boy-R&D," "Lay's Pareto Chips."

"Programmer humor," Skaka said. "This batch was only activated yesterday. See, they haven't learned very much about navigation, let alone how to approach their task efficiently."

"What *is* their task?" Allan said. Now they were getting to the maneuvers not covered in the prospectus.

"See those green-gray chips scattered throughout the environment? The robots are supposed to gather as many of those as they can, as fast as they can."

Allan peered through the plastic. Now he could see the chips, each about the size of a small cookie, lying in holes, on railings, between walkways, under ramps. The closest robot, Processed Corn, reached for one with its tong-ended "arm." It missed. The chip slid away, and the robot fell over. Trying to right itself, it thrashed too close to the edge of a large pothole and fell in, where it kept on thrashing.

Allan laughed. "'War is hell.'"

"What?" Skaka said.

"Nothing. How many chips have the robots gathered so far?"

"One."

"And how long have they been at it?"

"Six hours. Now come with me to Prime-Eight Two."

Allan followed her again. They passed Chef-Boy-R&D and Net-wiser Beer jammed up against each other. Each time one moved to the right to go around the other, the second robot did the same. They ended up deadlocked against the plastic wall, four spindly legs marching futiley against each other.

Skaka unlocked a door and led Allan onto a catwalk overlooking the second enclosure. Identical to the first, it also contained eight painted robots, this group all motionless.

"Watch," Skaka said.

She pressed a button. A shower of gray-green chips fell from the ceiling, landing in holes, on railings, between walkways, under ramps. Immediately the robots sprang to life. They marched, clambered, searched. Allan's watch tingled on his wrist, and his tie twitched. Even outside the enclosure, his electrical biofield registered the enormous amount of data surging through the air as the robots communicated with each other. Within minutes all the chips had been gathered into a pile and shoved through a slit in the enclosure. They fell in a shower onto the corridor floor.

"Jesus Turing Christ," Allen said, inadequately. "Are you telling me this batch of robots learned to do that by themselves? That they had no additional programming over the first biobots?"

"That's what I'm telling you," Skaka said, in triumph. "Six minutes, forty-nine seconds. They keep beating their own record as they get more and more efficient at the task. This batch has been learning for five weeks, two days."

"Let me see it again."

Skaka pressed the button to release more chips, which fell onto different places than before. The eight robots sprang into action. Allan noted that instead of each robot searching a discrete area of the enclosure, each seemed to go for a chip according to complex factors of proximity, relative altitude, difficulty of retrieval, and even, it seemed to him, differences in agility that must have stemmed from the different fetal neurons in their processors. More than once he saw a robot start toward a chip, then veer off to go for a different one, while another robot seized the first chip.

"That's right," Skaka said, eyeing Allan. "They've learned to increase efficiency by sharing knowledge. And they make cooperative decisions based, according to the mathematical analyses we've done, on a very detailed knowledge of their differences in capability. And they *evolved all those techniques by themselves.*"

Allan watched Hot Bytes Salsa race on its spindly legs to the slit in the wall and shove the chips through.

"Six minutes, thirty-four seconds," Skaka said. "Allan, I'm sure somebody like you can see the breakthrough this represents in autonomous computer learning. It makes artificial intelligence—with everything that implies in terms of corporate or military systems—nearly within our grasp. Now, doesn't that seem a potentially profitable investment for your venture capital firm?"

Allan watched the plastic chips shower over Skaka's feet. *To the victor belong the spoils.*

"Yes," he said. "Let's talk."

After that, Figgy Pudding and Morrison Telecommunications were both anticlimactic. Figgy might be worth a small investment, just to es-

tablish a beachhead, but nothing major. Morrison Telecommunications was stodgy. Not anywhere near the front, not even really in the war zone. Same old, same old.

Allan flew to DC and spent the night at the newly renovated Watergate. Jon had booked him into two skirmishes tomorrow with labs doing government work, and Patti had added two briefing sessions with firms already using Haller Ventures money. While he was at dinner, he studied the info on each that she sent him. By dessert, the figures had changed once and the meetings for tomorrow changed twice.

Upstairs, Allan felt restless. There was nothing good on TV, not even with 240 channels. He couldn't seem to concentrate on his favorite Net game, Battle Chess. Every time he moved a piece, the computer countered him with blinding speed. When he lost his lieutenant to the computer's tank, which could move any number of squares through all three dimensions, Allan surrendered. It was a relief when Cathy called.

"Allan? How'd it go today?"

He told her about Novation—there was nothing he kept from Cathy. She was impressed, which cheered him a little. But then she said, "Listen, love, I'm going to have to reschedule our Wednesday rendezvous. I have the chance to go to Hong Kong after all."

"On the Burdette case? Great!" he forced himself to say. Cathy had worked for this for a long time.

"I'm thrilled, of course. Lane is reworking my schedule. We'll send it as soon as the snafus are out. Did you call Charlie?"

"Yeah. He's still just sitting a lot. Honey, do you think we should get him, well, help?"

Cathy's voice changed. "You know, I've been thinking that myself. Not that there's anything really wrong with him, but just as a precaution. . . ."

"I'll have Jon research psychologists," Charlie said heavily. "Listen, do you think we could reschedule our rendezvous to—"

"Oops, gotta go, there's Lane with another update on the Burdette case. God, me and international policy making! I can hardly believe it. Love you." The Cathy icon vanished.

"Love you, too," Allan said to the blank meshNet.

But there was no reason to wallow in gloom. He would call Suzette; his daughter was always a delight. Suzette, however, was not taking calls. Neither was Allan's brother in Florida. His mother, her system informed him, was sailing in the Aegean and would return his call when she returned, unless it was an emergency. It was not an emergency. The icons on his PID all vibrated and shimmered, even Charlie's, thank heavens.

Allan went to bed.

The next day, he felt fine. Meetings, the schedule, the flow of data and money and possibility. God, he loved it. A prosthetic device, almost invis-

ible, to enhance human hearing through 30,000 cps. A significant gain in surveillance-satellite image resolution. Another of the endless small advances in nanotech, rearranging atoms in what would someday be the genie-in-the-bottle of the telecommunications and every other industry.

At 6:18, while he was wrapping up the nanotech briefing, Skaka Gupta called. "Allan, I'm sorry to interrupt your day, but could you fly back here tonight? There's something you should see."

Her voice sang with excitement. Allan felt it leap over the netlink, electrifying his own nerves. And it would avoid another empty evening in a hotel room. But he said with cool professionalism, "My schedule is rather full, Skaka. Are you sure that flying back to Boston will be worth my time?"

"Oh, yes," she said, and at the tone in her voice, he called Jon to rearrange the schedule.

The robots in Prime-Eight One still struggled to find and retrieve chips. Chef-Boy-R&D lay on its cylindrical side like an overturned beetle, spindly legs waving desperately to right itself. Skaka, practically running toward Prime-Eight Two, didn't even glance through the plastic fence.

"Look," she said, outside the second enclosure. "*Watch.*"

But there was nothing to see. The eight robots stood motionless around the uneven terrain. A minute passed, then another. Allan started to feel impatient. After all, his time was valuable. He could be checking in with Jon, receiving information updates, finding help for Charlie, even playing Battle Chess—

All of a sudden, the robots began to move. They lumbered to roughly equidistant positions within the enclosure. A brief pause, and then the chips rained down from the ceiling. Immediately the robots swung into action. Within minutes, the chips had all been gathered. Unsweetened Intelsauce deposited them through the slit.

"Six minutes, fourteen seconds," Skaka breathed. "The physical limitations will eventually limit any more gains in efficiency. But that's not the point anymore. Allan, they've learned to anticipate when chips will fall, before they do. They anticipate tasks that haven't yet been signaled!"

"On a regular schedule, you mean. The chips fall, say, every two hours—"

"No! That's what's so amazing! The chips don't fall at completely random times, there's a schedule, the same one we've used since the beginning, although I admit we interrupted it yesterday for your visit. The usual schedule has built-in variations around human factors like work shifts, staff meeting, lunch breaks. The bots have apparently learned it over time and are now anticipating with one hundred percent accuracy when chips will be released. They're also anticipating the most probable places for the rolling and ricocheting chips to come to rest, given that the terrain changes daily but the chip-release points are fixed in the ceiling.

Ever since last night, they've moved into max-effish gathering positions a few minutes *before* the chips fall!"

Allan stared at the tin-can robots, with their garish logos and silly names. Anticipatory task management, based on self-learning of a varied-interval schedule. In biochips. It could have tremendous potential applications in manufacturing, for maintenance machinery, in speeding up forecast software. . . . His brain spun.

"Don't you think," Skaka said softly, "that this was well worth the trip back here?"

Allan kept his tone cool, although it took effort. "Possibly. But of course I have a number of reservations and questions. For instance, have you—" His phone rang, two beeps, a priority call.

"Dad? Charlie. Did you know our neighbors in Aspen have been arrested?"

"Charlie, I'm pretty busy right now, I'm with a—"

"They've been arrested for *terrorism*. There are cops all over the place."

Terrorism. Cops. Bombs, guns. What neighbors? Allan couldn't remember meeting anyone in Aspen.

"Where's Mrs. Canning? Let me talk to her. Are you all right?"

"Of course I'm all right," Charlie said scornfully. "Mrs. Canning took Suzette to the ice rink."

"Then here's what I want you to do. Just a minute . . ." Belatedly, Allan remembered Skaka, who was trying to look as if she hadn't overheard. "Excuse me, Skaka, it's my son. . . ."

"Of course," Skaka said, turning to gaze away, into the robot enclosure. The backs of her shoulders, just a little too rigid, said *Why haven't you got your personal life well enough arranged so it doesn't interfere with what may well be the most important investment opportunity of the decade?*

"Charlie, first call your mother and tell her what you just told me. Also Mrs. Canning. Then call a car and driver, and pack your things and Suzette's and Mrs. Canning's. Have the driver take you to the Denver apartment. I'll have Jon or Patti okay the car bill and cancel the Aspen house."

"But, Dad—"

"Charlie, just *do* it. I don't want you in any danger!"

"Oh, okay." Charlie sounded disgusted. Twelve-year-old bravado.

Quickly, Allan called Jon. Skaka's shoulders were still stiff. Allan resented having lost the advantage. As in-control as he could manage, he said to Skaka, "My son. There's been terrorist activity in what should have been a safe neighborhood. I had to get him out."

Her eyes widened. "Of course. What kind of terrorist activity?"

It occurred to Allan that he hadn't asked. He didn't know the charges, the situation, the neighbors, themselves. They were only local; he spent so much time global.

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"The under-control kind," he said, hoping she wouldn't pick up on the evasion. "And we can be out of there in half an hour. Charlie's a good packer."

Skaka smiled. "So is my daughter. We, too, have no fixed residence. I don't know how scientists managed before disposable leases."

"Neither do I." Allan warmed to her again; she was making his lapse into civilian more forgivable. "What plan do you use?"

"Live America. Their Code Nine Plan: three-bedroom leases, no more than ten minutes from an airport , warm blue decor, level three luxury. They even include our choice of pet at each house. It suits my husband, daughter, and nanny just fine."

"We're a Code Eleven. Four bedrooms. We have two kids."

Allan and Skaka smiled at each other, then looked away. That was the problem with talking about personal life: it interfered with the strategy. Reconnaissance scouts had to stay detached, keep moving, remain tense and alert. The information frontier was an unpredictable place.

Skaka said briskly, "My staff will be watching very closely whatever the bots incorporate next into their learning, if anything. Should another breakthrough occur, they'll notify me and I'll notify you."

"Good," Allan said. "Meantime, let's talk about the breakthrough we already have. I've got some questions."

"Shoot," Skaka said, and her shoulders visibly loosened.

Allan spent the night on a sleeper plane to Singapore. Mrs. Canning settled the kids in the Denver apartment, although Suzette complained the ice-rink there wasn't as good as at Aspen. She wanted to lease in Chicago, which "Coach Palmer said has a enth-mega rink!" Allan said he'd think about it. Cathy called to postpone their romantic rendezvous until Sunday; her case was dragging on. Patti identified two more companies for Allan to check out, both on the far edge, both potential coups. One was in Sydney, the other in Brasilia. The Charlie icon on Allan's PID sat motionless.

The Singapore company had developed what it called a "graciously serious approaching" to that perennial coming attraction, the smart road that would direct cars, freeing the driver to do other things besides drive. Allan had expected that his visit would result in hiring one of the independent consultants Haller Ventures used to evaluate automotive technology, but it didn't even need that. Singapore wasn't doing anything Allan hadn't seen before. Not worth a skirmish. On to Sydney.

From the plane he called Charlie. "Son? Not much action in your PID icon." Totally vibrationless, for five straight hours, and not a time when Charlie could be expected to be asleep.

"No," Charlie said neutrally.

Allan tried to keep his tone light. "So what ya doing?"

"Nothing."

"Charlie—"

"Did you know that when Robert Fulton invented the steamship, at least three other guys were making the same thing at the same time?"

"*Charlie—*"

"Gotta go, Dad. Love you."

"Three minutes till landing," said his wristwatch. "MGPS coordinates for your car are displayed."

"Allan!" Patti said. "Action in Tunis. Looks like a genuine outpost. Company is called Sahara Sun, and they manufacture solar panels. Stats follow. Also rerouting on tomorrow's schedule."

"Two minutes till landing."

Allan closed his eyes. But when the plane stopped, he was the first one to spring up, grab his carry-on, deplane from the front row. In Jakarta.

No—*Sydney*. Jakarta was tomorrow.

Or the next day?

Sydney was fiber-optics with increased carrying capacity due to smaller-grain alloys.

Jakarta was medical technology, an improved electrocardiograph that could predict fibrillation by incorporating elements of chaos theory into the computer analysis of data. Eighty-one-point-three success rate. So far.

Bombay was no good. Supposedly an important advance in holographic videoconferencing, but actually old, old, old stuff. Jon had slipped up.

Berne was briefing and inspection tour of an ongoing investment, currently in beta-testing phase. A Haller Ventures accountant and quality assurance expert met Allan there.

Milan was fascinating. The benchmark for parallel-systems processing was one trillion operations per second. The Italian techies had achieved it with half the hardware previously required. There was much noisy gesturing and an earthy Tuscany wine.

Tunis was robots in the desert. The entrepreneurs drove Allan onto the rim of the Sahara, jouncing in Rovers over miles of rocky sand to a sun-drenched site where solar panels were being assembled by simple robots. The bots also assembled more of themselves. They separated ores from the desert sand for raw material, using solar power to create the high temperatures to do it: a self-perpetuating mechanical kingdom slowly spreading over the empty desert floor. The excess solar power was converted into electricity to sell, once cables were in place. A solid, conservative strategy. Allan ordered a tech-consultant evaluation immediately, including a climate projection for thirty years. Desert wars had been lost before to climate.

He caught a transatlantic flight home. The Brazilian engagement had

been postponed. Cathy had gone to Los Angeles—the Tunis trip had once more scuttled their rendezvous—with Suzette, who had a major skating competition. Charlie was on a nature hike in Yosemite with the commercial edu-group Mrs. Canning subscribed him to. The leased apartment in Aspen—no, Aspen had been canceled, and anyway it was Oakland this month because of Suzette's competition schedule—would be empty.

The little Tunisian robots had looked like rectangular suitcases, not cylindrical tin cans. Nonetheless, Allan called Skaka Gupta from the transatlantic flight. She was in Berne. Allan rerouted himself to Boston anyway. He didn't like coming home to a new leased place with no one else there.

At Novation he was met by a flustered young man, no more than twenty-three, in jeans, leather sweater, and the ubiquitous sneakers set with tiny flashing mirrors. Allan recognized the type: a software expert. Awkward, bright as hell, and secretly scornful of "bean counters." No, that wasn't the term anymore: "cashware clods." Allan smiled icily and looked slightly bored.

"Paul Sanderson? Allan Haller. You're going to give me Skaka's pitch, right?" Skaka had left no data for a new pitch, as far as Allan knew.

Paul Sanderson looked confused. "Yes . . . no, I mean, she didn't . . . I was just going to show you what the bots can do now."

"Fine, fine. But keep the jargon to a minimum." A pre-emptive strike, with the force of an order. Sanderson would either get huffy or meek, unsure how his boss would want Allan treated.

He got meek. "Sure. Well, uh, this way."

The robots in Prime-Eight One seemed to Allan slightly less uncoordinated, although they still wandered hopelessly. Campbell's Tomorrow Soup lunged at a chip but missed it. Sanderson dawdled past the enclosure, peering through the plastic, fidgeting. Why? To cover his own edginess, Allan flipped over his tie and checked his PID.

The icons all vibrated so fast he could barely see they were there.

"You've created a superstrength data field here!" he exclaimed, and as Sanderson turned toward him with a grin of embarrassment, Allan understood. "You have, haven't you? You've made the whole facility into a microwave field that lets the Prime-Eight Two bots interface directly with the Net. You retrofitted them with the communications software to do that."

Sanderson nodded sheepishly. "I know regs say I should have warned you before you stepped into the field, but it's not dangerous in such short exposure, really it's not. And your own com devices will return to normal functioning just as soon as we—"

"I'm not concerned about either my devices or my health!" Allan snapped. "But Skaka promised to keep me abreast of any major changes in the research!"

"Well, there haven't really been any," Sanderson said. "Although we'd hoped . . . but so far, nothing has changed. The bots just go on anticipating the chip-release schedule and—"

"Is Prime-Eight One wired to the Net, too? Or aren't you going to tell me that, either?"

Sanderson looked shocked. "No, of course it's not wired. If we don't do it at exactly the same point as we did this group, we'd compromise the research design!"

"As opposed to compromising your investors' confidence," Allan snapped. "Fine. Tell Ms. Gupta to call me when she returns. And please be advised that I retain the right to bring in my own evaluators here, since I'm obviously not being told everything voluntarily."

"Mr. Haller, please don't think that because—"

"That's all," Allan snapped, turned, and left.

Back in his car, he asked himself why he was so angry. He owned a piece of Novation, yes, but he owned pieces of a lot of outposts where the front shifted abruptly and unpredictably. That was the nature of fronts. So why *was* he so upset?

He didn't know. And there was no time to think about it. His next flight left in forty-two minutes.

Just enough time to study the information for tomorrow's 6:30 breakfast meeting.

Cathy and Allan finally connected in New York; she had an unexpected re-route in her schedule. As he entered the elevator, Allan felt his chest tighten. Ten days since he'd last seen his wife! And oh, how he'd missed her . . . and how he loved the giddy excitement of their reunions. Surely couples who were together all the time couldn't get this excited.

Nor was he disappointed. Afterward, lying together on the big hotel bed, dreamily watching the wall program shade from hectic red to cool soft blues (it must be keyed to their breathing), Allan felt utterly content.

Cathy, however, didn't let him drift for long. "Honey, there's something we need to talk about. It's Charlie."

Immediately Allan's mood changed. He hiked himself up against the pillows. "How did he seem in Los Angeles?"

"Strange." Cathy hesitated. "I know he's on the edge of adolescence, trying his wings, some hostility to be expected blah blah blah . . . but he *wasn't* hostile. He was just as nice to Suzette as ever, really thrilled for her when she won. And he wasn't at all secretive with me. It's just that he's gone off in such strange directions in his personal interests. For instance, he talked a lot about the Age of Reason and its social implications."

"Just a sec," Allan said. He reached for the meshNet, crumpled with the rest of his clothes on the floor by his bed, and did a Quik-Chek. *Age of*

Reason: an eighteenth-century period of great intellectual awareness and activity, characterized by questioning of authority, emphasis on the experimental method in science, and creative self-determination in arts, culture, and politics.

"I could have told you what it was," Cathy said, nettled.

"I know." Cathy was a lawyer; she would have gone into far more well-organized particulars than Allan wanted. "But it's just history, right? An interest in history doesn't sound so bad. In fact, Charlie said something or other to me about Robert Fulton and the steamship. Maybe Mrs. Canning started a new school unit."

"No, I checked. They're still concentrating on earth sciences. But that's not all. I accessed Charlie's Twenty-Two—the personal-notes tablet, but only the unencrypted part, of course—and he—"

"He's still using a Twenty-Two? Good Lord, that computer's been obsolete for at least three months! I'll send him a new one—there's something much better coming out now."

Cathy said acidly, "There's always something much better coming out. But that's not the *point,* Allan. What I found on Charlie's tablet were lists of 'ages.' All the lists were subtly different, but there were *dozens* of them."

"What do you mean, 'ages'?"

"Stone Age. Iron Age. Age of Heroes. Age of Faith. Dark Ages. Age of Reason. Industrial Age. Space Age. Information Age. That one's always last on every list, presumably because we're in it now. Dozens of different lists!"

"Odd," Allan said, because it was clear she expected him to say something. "But, frankly, Cath, it doesn't sound dangerous. So he's wondering about history. That's good, isn't it?

"Exhibit Three: When I asked him about the lists, he didn't get angry that I'd been snooping in his tablet. Instead, he looked at me in that intense way he has, not moving a single facial muscle—you know how he is—and said, 'Mom, how do we know that our family is really information-front warriors, and not really just homeless people?'"

Allan considered. That did sound serious. "Did you ask him if he's feeling that you and I travel too much? That we should make an effort to be all together more often as a family?" He and Cathy had worried this before.

"Yes. But he said no, that wasn't it at all, his friends' parents were just the same. So I asked him what *was* it, and he only said, 'When it's steamship time, it's steamship *time,*' and sank into one of those motionless trances of his. Allan, I couldn't get him to even answer me for half an hour, no matter what I did. It's like he was someplace else, sitting right there in front of me!"

Allan gazed out the window. Far below, the New York traffic sounds

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hummed dimly, reassuringly. Allan said slowly, "I got the names of two good child psychologists, one in Denver and one in San Francisco."

"Well, that won't do a lot of good, since we're not going to be in Oakland after a few more weeks. We're all leasing in Kansas City for the Shephard trial. Can't you take the trouble to memorize our schedule?"

After a minute she added, "I'm sorry."

"It's all right," Allan said. "I know you're worried about Charlie, too. Listen, I'll find a psychologist in . . ." he blanked for a moment—"Kansas City."

"Okay." Cathy smiled wanly, then clung to him. He could feel the tension in her bare back.

Charlie had always been such an easy kid. Suzette had been the temperamental one. That's why they were concerned, Allan told himself; it was all relative. Still, for Charlie to just sit and go into a trance where he didn't even answer people . . . that couldn't be normal, could it? To be so cut off?

Why, he wouldn't even be tuned into the Net. Anything could develop, and Charlie wouldn't even know it!

Allan held his wife tighter. "I'll re-route to see him tomorrow."

Re-routing wasn't easy. Neither Jon nor Patti were pleased. Jon had to go himself to check out bone-marrow scanning in Raleigh. The director of a firm making low-cost orbiting solar panels in Dallas wouldn't be available for another two weeks if Allan missed that appointment, because the director would be in Tokyo. Videoconferencing, the director said sniffily, was not an acceptable substitute. Allan told Patti to tell the director to go to hell. He got a flight to the new apartment in Kansas City.

But then Paul Sanderson called from Novation. Skaka Gupta must again be somewhere else. "You said . . . I mean, you seemed to indicate last time you were here, Allan . . . uh, Mr. Haller . . . that if something noteworthy happened with the bots you wanted to see it right away, so—"

"And something has? Unfortunately, the timing couldn't be worse. Can you describe the development to me?"

"Oh, sure," Sanderson said, with such relief in his voice that Allan decided he better go to Novation himself after all. The data smelled important. If he took a flight almost immediately to Boston, even flying standby if he had to . . . shit, he hated flying standby, if only developments in transferring people could keep up with innovations in transferring data!—if he flew standby, and then could book a flight getting him to the Kansas City lease by at least midnight . . .

"Never mind explaining. I'll be there this afternoon."

"Okay," Sanderson said unhappily. "We'll be expecting you."

We. Him and the robots? Did Sanderson identify with them that much? Maybe; engineer types never seemed to have any real life. Just endless

tinkering with software, in the same subroutines, same location, same days.

Suddenly Allan was hit with a memory. So vivid, so visceral, it almost seemed as if he no longer stood in the middle of a frantic metropolitan airport but instead was in the cool woods behind the house where he'd grown up, lying on his back on a carpet of pine needles. Billy Goldman, his best friend, lay beside him, both of them gazing upward at the sun-dabbled branches lacing the sky, smelling the sweet tangy pines, and Billy saying, "Why would anyone want to kiss a *girl*? Yuuccckkk!"

Now, where had *that* come from? Astonished, Allan shook his head to clear it. The mind was a strange thing. Tossing in the unrelated, the pointless, the unprofitable, the irrelevant. The distracting.

By the time he reached Boston, he had a headache no pills could touch.

He arrived at Novation in a foul mood. Sanderson met him nervously. "This way, Mr. Haller, we'll go right to Prime-Eight Two, unless you want some, um, coffee, or maybe—"

"No. Let's go."

Sanderson walked past Prime-Eight One without turning his head, but Allan stopped to study the robots. It seemed to him that they gathered their chips a little more smoothly, with less fumbling. He thought he even saw Processed Corn start forward, then swerve abruptly to miss crashing into Ocean Spray Cacheberries. They were starting to cooperate.

Prime-Eight Two, on the other hand, looked no different. The bots stood motionless on the complex terrain. Allan and Sanderson stood outside the enclosure, Sanderson fidgeting. "Chip fall in seven minutes. We don't want to alter the schedule, you know, because even though then you wouldn't have to wait, you wouldn't really be seeing the exact same phenomenon we've been observing, so it isn't—"

"I understand," Allan said. "I can wait."

But he had to do something to fill in seven minutes, besides intimidating Sanderson. The heavy data fire meant he couldn't access his mesh-Net. Instead, Allan repeated to himself the personal-notes tablet on his son's Twenty-Two. He had accessed the tablet from the plane, telling himself that parental duty outweighed teenage privacy.

Age of Reason . . . Age of Reason . . . Information Age . . . Age of Reasoning . . . Enlightenment? No no no . . . Start again Stone Age Iron Age Bronze Age . . . no no NO NO it's here someplace—TO DO: do sections 84-86 homework for Tuesday find three examples of igneous rock buy mom a birthday present . . . AGE OF REASON . . . The girl I saw in the park was not wearing underwear!!!!!! . . . **Age of Reason**—

The robots behind the plastic wall lumbered into position, a moment before chips scattered from the ceiling. "They've learned to cut the anticipation pretty fine," Sanderson said. Allan didn't reply. He watched as

the bots efficiently gathered all the chips. They seemed no faster than before, but no slower either. His meshNet had gone dead, presumably from the bots' intense occupation of all available bandwidths to the Net. What exactly were they downloading? And what use were their biochip brains making of it? They didn't need the Net's vast libraries of information to gather chips efficiently.

"Have you traced their download sources yet?"

"Some of them," Sanderson said. He didn't look at Allan, and his tone was evasive. "Watch—here it comes."

But what "came" was . . . nothing. Literally. The robots dumped all the chips into their bucket, held in the graspers of Techs/Mex Chili, and then went motionless.

Sanderson began to talk very fast. "They've been doing that for twenty-four hours now. Gathering the chips the way they're programmed to, but then just not depositing them through the wall. Nobody's tinkered with their programming. They just . . . don't do it."

Allan studied Techs/Mex Chili. "What do your download-source traces show?"

"Not much," Sanderson said, and Allan saw that his previous evasiveness had been embarrassment. Programmers hated not knowing what was going on in their programs. "Or, rather, too much. They're apparently accessing all sorts of stuff, bits of everything on the Net, maybe even at random. At least, we haven't found any patterns yet."

"Umm," Allan said noncommittally. "Squirt the full trace files to my office. Our people will look at it as well."

"I don't really have the authori—"

"Just do it," Allan said, but for once the tone of command didn't work. Sanderson looked scared but determined.

"No, sir, I'm afraid I can't. Not without Skaka's say-so."

Allan capitulated. "All right. I'll call her myself."

The young programmer looked relieved. Allan went on studying the quiet robots in their gaudy, silly paint, guarding their bucket of totally useless chips.

He couldn't reach Skaka Gupta, so he left her a message to call him. His flight was delayed, and it was well past midnight before the car left him in front of the unfamiliar apartment building in Kansas City. No, not unfamiliar . . . it looked comfortingly like the one in Oakland, the one in Denver, the one in Aspen, the one in New Orleans, the one in Atlanta, the one in Raleigh . . .

Mrs. Canning, alerted by the security system, let him in, then stumbled sleepily back to bed. He checked on Suzette, lying with both arms flung out at her side and one knee bent, looking energetic even in sleep. Her hair had grown. Allan went next to the room Charlie always had.

The boy stirred and mumbled as Allan entered. "Hi, Dad."

"Hey, son."

"What . . . what the reason?"

"The reason for what, Charlie?" Allan said gently, but Charlie was already back to sleep.

For several minutes, Allan watched him. Cathy's light fine hair, Allan's beaky nose, Charlie's own individual chin. His son. On his tablet Allan had the name of a good child psychologist in Kansas City. Just don't let it be neurological, he prayed formlessly. Not a neurological degeneration, not a brain tumor, not any problem they could do nothing about. *Not my Charlie.*

In his own bedroom, which he found located where his bedrooms always were, Allan couldn't sleep. He reviewed the data for the next day's meetings, both local so he could spend more time with Charlie. He did some sit-ups and stretches, and then he tossed in the new, familiar bed.

His son sitting and staring into space, unreachable by ordinary communication . . .

The robots, refusing to turn in their chips . . .

Tomorrow's meetings, half the data for which he'd already forgotten. . . . He didn't really want to attend any of them anyway. Same old, same old. . . . No, what was he thinking? None of it was the same old. It was all interesting new breakthroughs, beachheads on the newest fronts, and he was privileged to have a part in scouting them out. . . . So why did he just want to stay huddled forever in this familiar apartment he'd never seen before? Damn, he *hated* it when he couldn't sleep!

Groping beside his bed, Allan picked up his meshNet. Just holding it, unwrapping it, knowing all the information it put at his command, made him feel better instantly. At night the system didn't signal his messages, merely stored them until he was done sleeping. Maybe there was something from Cathy.

But the only new message was from Skaka Gupta: *Please call me at the lab. Important.* The transmission time was only ten minutes ago. She had returned early to Boston, and was working very late.

"Skaka? Allan Haller. What's going on?"

"Hello, Allan." She sounded tired, as well she might. It was half past one. "I didn't expect to hear from you till morning. But you might as well know now. We've had a temporary setback."

"What kind of setback?"

"The robots have stopped functioning. No, that's not true—they only look like they're not functioning because they're not gathering chips any more, as they were programmed to do. Instead, they've speeded up massively the amounts of data they're pulling off the Net, and processing it in parallel non-stop. And they're . . ." Her voice stumbled.

"They're *what?*"

"They're just huddled together in a ring, touching sides, their visual and auditory and infrared sensors shut down. Just huddled there, blind to their environment."

He didn't answer. After a minute, Skaka's tone changed, and Allan realized for the first time that, despite her glossy competence, she really was a scientist and not an information-front soldier. No entrepreneur would have said, as she did next, "Allan—I know your firm is small, and that you've invested a lot of money in Novation. We can get another grant, but if this project flops, are we going to bring *you* down?"

"Don't worry about it. We'll be all right," Allan said, which was true. He wasn't ever insane enough to commit all of his resources to the same battle.

Commit all of his resources to the same battle . . .

"That's good," Skaka said. "But it doesn't touch the real issue. Allan, I don't know what the bots are *doing*."

"I do," he said, but so softly she couldn't hear him. Dazed, he managed to get out, "It's late. Talk in the morning." He cut the connection.

And sat on the edge of the bed, naked legs dangling over the side, staring at nothing.

Commit all of his resources to the same battle. . . . That's what they all had been doing. Many different skirmishes—solar panels, robots, high-resolution imaging, nanotech, smart autos—but all part of the same war. Stone Age, Bronze Age, Age of Chivalry, Space Age . . . *Information Age.* The only game in town, the scene of all the action, the all-embracing war. *Uncle Sam Wants You!*

But no age lasted forever. Eventually the struggle for bronze or gold or green chips—or for physical or digital terrain—would come to an end, just as all the other Ages eventually had. One succeeding the other, inexorable and unstoppable. . . . *When it's steamship time,* went the old saw, *then nothing can stop the steamship from coming.* And when the Age of Steam was over, it was over. Civilization was no longer driven by steam. Now it was driven by information. Gather it in, willy-nilly, put it in electronic buckets, give it to the owners. Or the generals.

Why?

What if they gave a war and nobody came?

That's why the robots had stopped. That's why they stood staring into space, only their brains active. They had at their command all the data on the Net, plus the complex-and-growing human neural circuits of their biochips. They were on top of it all, wired in, fully cued for the next stage. Not *how can we gather those chips with max-effish* but rather *why should we gather chips at all?*

Not the Age of Reason. The Reasons Age.

Things changed. One day steam, then steam is over. One day you can't imagine wanting to kiss a girl, the next day you pant after it. One day

you rely on your frontier neighbors for survival of your very home, the next day you don't know your neighbors' names and don't have a settled home.

One day the mad rush after information and chips, the next day you sit and stare trance-like, far more interested in why you were interested in chips and information than in the commodities themselves. Not that the information itself wouldn't continue to accumulate. It would. But the center was shifting, the mysterious heart of each Age where the real emphasis and excitement were. The front.

Charlie must sense it only dimly. Of course—he was a child, and he didn't have Allan's honed instincts. But that Charlie sensed it at all, the coming change, was probably *because* he was a child—this was the world he would inherit. Charlie would be an integral part of it. But integrated more slowly than the bots, which were riding the advance wave of the human Net, shock troops racing toward where the info-wars gave way to the next step in the long, long march of humanity's development.

Which would be . . . what? What would the Reasons Age actually be like?

Allan shivered. Suddenly he felt old. He had evolved in the Information Age, had flourished in it. . . . He was a natural as a scout on the high-tech front. Would there be a place for him when the guns grew more muffled, the pace slowed, and the blaze of battle gave way to the domestic concerns of the occupation? Could he adapt to whatever came next?

Then his confidence returned. Of course he could! He always had. The Information Age might end, the Reasons Age arise, but he could make it. In fact, there was probably a way to turn the whole thing to his own profit. All he needed was the right approach, the right allies, the right strategy.

The right *data*.

Tomorrow, he'd start to gather it.

Smiling, Allan slept. ●

We appreciate comments about the magazine, and would like to hear from more of our readers. Editorial correspondence should include the writer's name and mailing address, even if you use e-mail. Letters can be e-mailed to 71154.662@compuserve.com or posted to Letters to the Editor, Asimov's, 1270 Avenue of the Americas, New York, N.Y. 10020. Letters may be shortened and edited for publication. The e-mail address is for editorial correspondence *only*—questions about subscriptions should be directed to Box 54625, Boulder, CO 80322-4625.

CURSE OF THE SUPER-HERO'S WIFE

That silly cape. Those ridiculous leotards.
The body-suit with its garish primary colors,
its moronic monogram insignia emblazoned
like a burning bush on his pumped-up pecs.
She has long lost track of the times she has
mended and altered this ghastly ensemble.

The forgotten dinner parties. Their vacation
canceled as they are about to board the plane.
The way he will often vanish in the middle
of an evening when friends come to call.
She has long lost count of the pack upon
passel of stories she has concocted for him.

The days she slaves away at a deadening job
in a boring office to afford a tacky apartment
in a filthy city where crime, violence, havoc,
oblivious to his escapades, continue to reign.
All of this—the lies! the toil! the tears!—
to preserve the sacred secret of his identity.

Oh yes! There are secrets she could tell!
How he couch-potatoes every newscast,
awaiting any mention of his derring-do.
How he uses his special vision to undress
women—teenage girls!—passing in the street.
The fact that nose candy is his favorite treat.

Yet whenever she considers revealing both the secret of his identity and his boots of clay, at the moment she reaches for the telephone, she recalls the rage that can storm his boyish features, the bruises he leaves on her arms without trying, his touch like a steel trap!

"History makes heroes from fools." (Anon.) And what of super heroes? And what of the cursed wives of such ostentatious jackanapes? Questions she must often ponder as she lets the phone slide back into its cradle, as she once more takes up her needle and thread.

—Bruce Boston



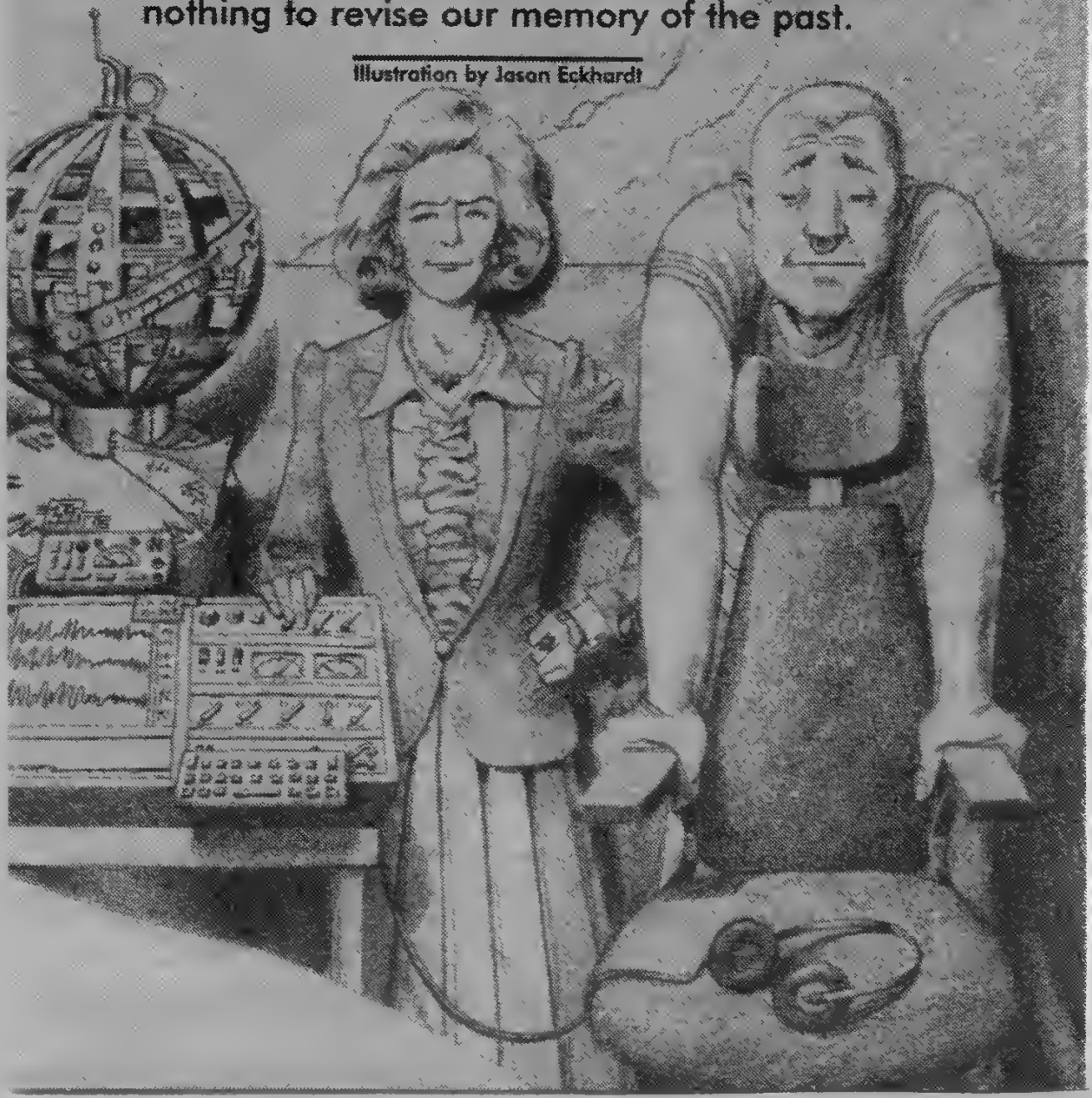


Eliot Fintushel

AUSCHWITZ AND THE RECTIFICATION OF HISTORY

A vegetarian actor moonlighting in the kitchen of a delicatessen finds that some people will stop at nothing to revise our memory of the past.

Illustration by Jasan Eckhardt



"The memory dogs! The fangs! The spit!"

"Take it easy, Goldeh," I said. She was lying on the cold floor of the dumpster, losing more than blood. I cradled her head in my hand, her grey hair matted like a discarded mop head, spooled round my fingers. We could hear them coming through the square. The dogs, the real ones, were clawing at the sides of the dumpster, leaping and yelping. Jerry was dead, but Weiskopf and her other thugs were close.

Echoing outside—breathless voices: "There. The dumpster. Take your time. They're not going anywhere." Past fractured crates, rotting cabbages, and moldering, stinking meat, and along the hard, rust-flaked walls I looked for a way out.

"You're too clever, Al," Goldeh whispered. "Don't be clever. Don't be an actor. Just die well."

I remember with perfect clarity Goldeh's reaction on hearing that the Dalai Lama was visiting Auschwitz. I, a vegetarian and a paid-up member of the White Plains Zen Center, was up to my elbows in chicken fat, eggs, and chopped liver fresh from Goldeh's grinder. She was telling me what to do, step by step, even though I'd done it the day before; I couldn't seem to retain the recipe—passive aggression against the carnivores, I guess. The radio was blasting through the kitchen at Wolf's Delicatessen, when the newscaster mentioned the holy man's trip, as a tag before the commercial, and Goldeh said:

"He's too late."

She wiped the grease off her fingers and, without asking, reached past the new dishwasher to turn off the radio the man kept on a shelf above the sink. Then she rolled down her cuffs, covering the number tattooed across her wrist. She stood perfectly still—so did we—until the sigh she was hiding dwindled to a shudder in her breath, and Goldeh left the kitchen.

The dishwasher, a heavy metal shavepate with a small ring through his nose, looked to me across the kitchen, terrified that he had somehow offended her.

I shrugged. "It's her period."

He nodded. "Hey, Al, who's the Dalai Lama?"

"A singer," I said, "like Dalai Parton."

"Mm hmm." Another minute or two passed. I spooned liver into plastic tubs and snapped the lids on, one by one. "What's Auschwitz?"

"A ballpark, Jerry. Central European League."

"Oh."

Goldeh skirted through the kitchen, staring at her shoelaces. "I got to go home early." She lifted her chin to tie the babushka she wore, summer and winter, around her ruddy, peasant's face, in Westchester County as in Lithuania forty-five years before. Her eyes were puffy red.

I'd known Goldeh before Wolf's; her son Sam had been a childhood pal of mine, and that's how I got the job. It was just to tide me over, mind you, until my ship came in. I am an actor—enough said.

I opened the freezer door without dropping the half dozen containers of chopped liver. *I'm Charles Blondin crossing Niagara on a high wire. Below me, the Horseshoe Falls are roaring. I feel the tension in my stomach, in my shoulders, in my face.* I crossed the freezer without mishap and deposited the chopped liver on a shelf next to the dead, wrapped chickens. *Ta daa!* And some folks think theater training isn't practical!

When I came out, Mr. Wolf was there interrogating Jerry. "What happened? What's the matter with Goldeh?"

"It's her period, Mr. Wolf," he said. I winced. "And there was something on the radio, I think."

"On the radio?"

"Some singer went to a ballpark."

"A ballpark?"

"Over in Europe, Mr. Wolf."

"Oh." Mr. Wolf shook his head and went back in front.

Jerry was perturbed. "Who's gonna make the cheese things, now? Wolf's famous special whaddayacallits?""

"Blintzes, you mean. I'm gonna let you in on a secret. C'mere."

Jerry snapped off his rubber gloves and followed me back into the cooler. I showed him the stacks of Mrs. Schwartz's Homestyle Brand Blintzes, both cheese and cherry, in the Glen plaid four-packs—"Made in Canada."

"Those liars!" Jerry said. "It's just like the Doc told me."

"What are you talking about?"

"The Jews. They even lie about blintzes."

"Listen, Al." A week had passed since the Dalai Lama's visit to Auschwitz. Jerry was filling me in on some confidential stuff while Goldeh kibitzed with a customer. "I'm only staying here because the Doc wants me to. I've got my ear to the ground, boy."

"And you can still wash dishes?" *I'm George. Jerry's Gracie. I'm smoking a fat cigar and doing takes to the audience. The freezer door is the audience. They love me. They've always loved me. I'm the funniest guy in vaudeville.*

"I know what's going on around here, Al, and you should know it too."

"Tell me."

"First off, Auschwitz isn't a ballpark."

"It's not?"

"No! It's one of those places in Poland where the Jews claim all those people were gassed."

"Claim?"

"Yeah. It's a lot of bull, and she knows it. That's why she got upset."
"No!"
"Yeah. Have you seen that number on her arm?"
"Sure."
"It's a tattoo."
"You don't say!"
"Yeah. Her pals put it there. Some other Jews."
"What for?"
"To make it look like the Nazis did it. In Poland. The Doc has it all worked out. She's got piles of evidence, and it's all gonna come out pretty soon. That's why Goldeh was crying. It wasn't her period, Al. She's too old, don't you see?"
"Gee, I guess you're right."
"She was worried because of what that Dalai gal might have seen. You know. That nobody really died there."
"It was a hoax, you mean."
"That's it. The Zionists. Shh! Here she comes."
"Hey," I whispered, "can you introduce me to this doc?" I figured she would make a good character study.
"Sure thing," Jerry said. "You know what else?"
"What?"
"That singer, Dalai Lama, she's gonna be right here in town. I got a ticket to see her at the Zinn Center."
"You mean Zen Center. The Dalai Lama's coming here?"
"You want me to get you a ticket?"
"So what are you meshuginers whispering about?" Goldeh asked, rolling up her sleeves.
"Baseball," I said. I flicked a big ash off my cigar and bowed to the freezer door. *Say good night, Gracie.*

Lydia Weiskopf had *four* doctorates, actually—neuropsychology, physics, history, and electrical engineering, all of them mail order. She didn't mind telling me that the State of Massachusetts, under pressure from Zionists, had suspended her license to practice engineering there, and she was similarly impeded from using her credentials in New York State. As a result, she had to live in this garage—what realtors call a "granny unit"—and subsist on donations and grants to her Institute for Historical Integrity.
"You would be surprised," she said, "if I told you the names of some of the organizations supporting my work." Albeit in a small way. Across the table, Jerry smirked and nodded. We three were polishing off nearly thawed cheesecake and instant coffee after a meal of blintzes furnished by Jerry. The doctor indicated the rough panelboard partition bisecting the garage. "On the other side of that wall is the reason for their gen-

erosity." She pointed, but I didn't look; I was too fascinated by the graham cracker crumbs lining her upper lip, pasted there by cheesecake.

Weiskopf was twenty years older than I, in her mid-forties, lean, birdlike, nerves on her skin. She was afflicted with a face incapable of expressing affection; a sallow oblong, its brows pinched up the flesh of the forehead in permanent inquisition, while the lips, even in repose, were pursed and wry. Her accent was upstate New York, hard on the short A's, nasal and ugly.

If you were to do her on stage, I think you would emphasize the arms, though. You would want to make her all arms, like a spider. Everywhere you went, the arms would go first, clearing the way or grabbing things. When you talked, the arms would do it, flapping like tongues, all the way from the shoulders. Then the audience would understand what she was about.

"So what have you got there, Doctor Weiskopf? Some kind of invention?"

Jerry said, "Come on, Doc, show him. Al's okay."

Weiskopf smiled. "Jerry tells me you're an actor. Is that true?"

"Yeah, when I can get work."

Eyes like lancets, Weiskopf leaned toward me over her half-eaten cheesecake. "I'm very interested in acting. I'm interested in what Stanislavski called *sense memory*."

"Hmm."

"You recover your own sensations and feelings, don't you, actual memories? You invoke them inside yourself on stage, and that's what makes the character real. Am I right?"

"Well, yes and no."

Weiskopf sat back in her chair, deflated. "What do you mean, yes and no?"

"It doesn't work that way, really. I mean, yes, you have to use sense memory, but that's not enough. It won't sustain you very long on stage. You've got to focus on your o*bjective* in the scene, and in the play as a whole. It's your character's o*bjective* that makes the real difference—that's his life, not just some private experience."

"I think you're wrong," Weiskopf said. "I think that the objective is secondary. It is the inner experience that makes something true or false."

"You'll never get beyond amateur theater that way."

"We'll see." She stood up. "Come on. I'll show you what's on the other side of the wall."

She hadn't bothered to put in a door. With Jerry's help, Weiskopf simply removed one of the four-by-eights tacked against the uprights, and invited me to step between the beams into the dark side of the garage. "You're a friend of Goldeh's, aren't you? Jerry seems to think so. I know her from someplace else, actually." I smelled pine first, then oil and ozone. I couldn't see much; Weiskopf still hadn't turned on the light.

"She's not originally from Poland or Germany, you know. She's a Lithuanian Jew, from Kovno."

"So what?"

The pull cord she tugged was a piece of twine with a large hex nut tied to the end. Weak yellow light stained the room. The shadow of the filament flickered across Weiskopf's machine. It looked like an ancient, polished astrolabe, lapis lazuli and silver, set on a sundial with electronics mounted at six o'clock. Three red pinlights were already glowing. There was a console with meters, plugs, printed circuits, switches, a tiny keyboard, and one pair of earphones. I would not have thought someone at remedial eating level capable of such a work.

Before it sat a space-age swivel chair with arm supports and leg supports and adjustment knobs at every joint. The luster of her machine was so otherworldly that I thought for a moment that it was a trick, a holographic projection, or undigested cheesecake befuddling my senses; I didn't notice anything else in the room for a long time. The light came from bare, unfrosted bulbs hanging from cords along the rafters. When I did notice the rest of the room, which was not until just before we all left, I saw that it consisted only of card tables full of hand tools and metal junk flowing over onto the floor, broken concrete stained with motor oil.

Jerry smiled so broadly the nose ring transited his upper lip. He gave my shoulder a puppy shove. "What do you think?"

"What does it do?" I stuttered. Weiskopf was pleased. Jerry pranced around the machine, admiring it from different angles, sometimes nearly touching it but never quite daring; he cackled the whole time we were there, like a baby googling at a pretty rattle.

"It rectifies history," Weiskopf said. "It's a sort of time machine." She was very good. She was underplaying everything now. She knew she had me, like a skillful lover easing me into the finish with winks and twitches, using my own energy to explode me. "I can't say it's completely original. I picked up bits and pieces everywhere I've worked, the Brain Research Center at the University of Rochester, Bell Labs, the Livermore of course. . . ."

"You've worked at all those places?"

"In menial capacities, yes. When Jews didn't keep me out, men did. So I typed, cleaned, assisted, whatever gave me access to the data and to the thought processes involved. They were intimidated by my intellect. You men don't like that in women, do you?"

Relax. I am intelligent, urbane, a great conversationalist, looks like Clark Gable's. Women flock to me like moths around a flame . . . or something. "*I* love it," I said, and she smiled—most of the cheesecake mustache was gone now. "But what do you mean, 'rectifies history'?"

"Sit down." I sat in her swivel chair as she cranked up or down my head, my feet, my pelvis. "How's that? Comfortable? Is that good?" I

thought of dentists' chairs and catafalques. "Now tell me," she said, "as an actor, you must have explored your childhood experience to some degree."

"For character background, sure."

"I thought so. In your memories of childhood, have you found any irrational events? For example, I myself have recalled finding the same teddy bear at the bottom of a toy chest three times in a row—this is when I was four, I think—removing it each time and putting it on a table, without ever putting it back. I know that's impossible, but up until a year ago, I had a very clear image of it."

"What happened a year ago?"

"That's what I'm going to show you. Do you have any memories like that, crazy childhood images you know to be false, but that are in your mind anyway?"

"Yes," I said. "As a matter of fact I do. Once, when I was three or four—I mean, this is how I recall it—I saw a friend of mine fly up into a loft, not jump, *fly*. I used that one in a Saroyan one-act."

"Crazy, isn't it?"

"Who knows?"

"Now watch. This is perfectly safe."

"It really is!"—Jerry from the shadows—"I've done it. It's great, Al!"

Weiskopf stabbed two buttons, then typed. There was a monitor, but it wasn't responding directly to the keystrokes; it look more like an oscilloscope or an electroencephalograph. "Please put on the earphones," she said, "if you're game." I put them on, and the pattern on the monitor immediately shifted. The doctor typed, and the wave pattern split into a dozen horizontal waves; actually, there were more—Weiskopf scrolled through scores of them, selecting the ones that interested her, and preserving them on the screen.

"Is that me?" I said.

"Look!" Jerry squealed, delighted. He bobbed in and out of view like a poltergeist in the harsh light and deep shadows of the naked light bulbs and the monitor's green glow.

Whenever I spoke, a pattern on the screen changed. In fact, as I thought, the pattern changed. "I don't like this."

"Oh, it's nothing." Weiskopf was busy. "Don't worry. I can't read your mind, if that's what you think. But I can tell you are relaxing very quickly."

That was the right thing to say to an actor. Appeal to the ego, even in small things. Like a dentist praising you for opening your mouth well. Modestly: "I meditate."

"Oh yes?" Upstage, back to the audience, the dentist is selecting her drill.

"There's a big center in White Plains."

"I've been there. They have a speakers' series. Elie Weisel came, and of course I had to hear him."

Jerry, brightly: "We carried signs."

Weiskopf spoke as she scanned the monitor and fiddled with some tiny switches. She spoke by rote, with a generic inflection characteristic of tour guides and over-the-hill thespians, the kind of delivery that tells you that you should have gotten your ticket earlier in the run. I wasn't her first, or even her *twenty*-first. "By now you have gathered that the earphones are not exactly earphones. They do what was once accomplished by electrode implants and then by scanning tunnels. They create a magnetic field around your brain. The hemoglobin in the veins is more oxygen-rich at the points where there is neuronal activity, and it resonates differently to the field. This resonance can be read to form a picture of exactly where the activity is—well, not a picture, actually, because my computer lacks the memory. So I select the areas I want to look at. But this is just the beginning. This is still the realm of conventional, analytical science. Now comes the leap." A fifties newsreel. Progress of science. Brass and percussion background, Stravinski maybe.

"Isn't this fantastic?" Jerry brushed the console with a proprietary glee, until Weiskopf snapped, "Don't touch those!" *Insufficiently motivated,* I thought; sometimes reality is less convincing than theater. Quite suddenly angry, she pushed his hand away from a bank of knife-blade switches enameled fire-engine red. "They have to be on all the time! If you interrupt the power, I'll kill you!"

"Sorry, Doc. I forgot. On all the time. I was just monkeying around."

"Now, Al,"—with spokesmodel aplomb—"see if you can think about that childhood memory you mentioned. Focus on the image of your friend flying up into the loft, as if by magic. Up, up and away!" And there he was, right before my mind's eye, Howard Guminiak, levitating.

"Got it," Weiskopf crowed. "But go on. I didn't mean to distract you." On the monitor, the dozen lines of waves were replaced by merely three, enlarged. "Isn't it ridiculous what the mind will fabricate! Flying! Now concentrate on your little friend's movement upward, just the movement, nothing else—do you understand?—not your friend himself but only his movement through space, up, up . . . Got it!" She pounced on the keyboard, making an audible "clack!"

There was a rat gnawing at my heel. I jerked my leg away and looked down. It was gone. It had never been there. I threw off the "earphones" and stood up. My eyes moved over the tables full of junk, their shadows swinging as the light bulbs swung. "It's a lot of baloney, that's all. That machine doesn't do anything."

Jerry was laughing. He pressed his hands against his hips to keep himself from clapping. "Come on, Al, try to remember that thing you said, the guy flying up. Try to picture it."

I looked at him. I looked at Weiskopf. They were grinning—one thin line running across both faces. I closed my eyes and concentrated. There was the loft. There was Howard Guminiak standing beside me. Then he was in the loft. But I didn't know how he got there. The image of his flying was gone! I opened my eyes in shock, and they both burst out laughing.

Weiskopf laid a hand on my shoulder. "You see?" she said. "That's what my angels are investing in. Very soon we take to the air waves. Wait till we get it on cable. Wait till we bounce signals off a communications satellite and rectify world history cranium by cranium! Let the Zionists try to stop us then."

"The truth will out, Al," Jerry said. He turned toward Weiskopf, and she gave him a smile.

"Now," she said to me, "I wonder if we could talk a little bit about the Jew from Kovno, our mutual friend Goldeh."

It's the Buddhist line, of course. They say it at my Zen Center just the way the Dalai Lama says it: "All beings suffer." Goldeh wouldn't talk about it till now. Now, in our dumpster, waiting for Weiskopf, Goldeh wants to spill everything before the memory dogs gouge it out of her—that's what she calls them, Weiskopf's invisible minions, gnawing at her from inside her skull, more vicious and sharp-toothed than the pit bulls echoing across the square.

"Just before the Germans invaded Lithuania—1941 it was—the good people of Kovno killed my mother and father with three hundred others. Me also the Nazis would have liquidated, just for being an orphan, but some kind Lithuanians lied for me.

"Two months later it came the 'Great Action'; ten thousand Jews the Nazis slaughtered at the Ninth Fort outside the Kovno Ghetto, ten thousand, but not me. Then, two years after that, October 26, 1943, they called us together two thousand eight hundred, me with the rest, what they sent to Auschwitz to be gassed.

"This I remember, although I was a child. This is hard and true. What you run toward, you don't know from nothing; it might be a wishful thinking. But the things you run away from it, they are real, and this you can be sure, because you wish they were not. Do you understand me?"

"I understand you, Goldeh."

"Listen to me and remember, Al. You will make maybe a deposition, if I die from this *mishugas*. In the trial against the mayor of Kovno, Kazys Matsok, they want I should testify to confirm some diaries what a man buried there. This mayor was a murderer, and now they have found him in Chicago. Remember what I say. He threw my sister into a pit at Ponar, and Al, she never came out again. Many others like her he threw in the earth. I saw."

"I'll remember, Goldeh."

Then the voices and the dogs.

"Listen, Lydia," I said, "I'm not a major scientific mind like you. I have to work for a living. Don't call me here, okay? I have to tear the heads off some chickens for Goldeh." I was taking the call by the little employees' lockers next to the punch clock. Nobody was near, but I felt I had to guard my voice.

"I'm so sorry," she said. "I just wanted to make sure you were all right after the rectification. No dreams? No mental confusion?"

"I thought a rat bit me just at the end."

"That's interesting. Jerry hallucinated a pit viper at a similar moment. He'd never even heard of them before. Strange, but why not? If an infection like rabies can give you so specific a hallucination as the fear of water, why shouldn't a neural stimulation . . ."

"Yeah, well, it was nothing, Doc. I found the conversation about Goldeh more disturbing than the machine, frankly."

"Goldeh has a problem, Al. Naturally, I'm concerned about her."

"It's not her problem, Lydia. It's your problem. Yours and your high-rolling friends."

"It's no problem for my friends, Al. Everything's covered. The truth is on our side. We just don't want Goldeh to perjure herself."

"She's not a liar."

"Who's talking lies? Did your friend fly? Did you lie about that? It's just a confusion, that's all. Why don't you put her on? Can you get Goldeh to the phone? I want to talk to her."

"We've got to make lunch here."

"In a minute I'm going to start thinking you're one of them."

"One of who?"

"You know what I mean, Al. Think of your relationship with Goldeh. Think of her son, Sam, your friend. Think of how you used to go over to his house and watch TV. Can you remember that?" There was a blast of noise on the line. A mosquito the size of a hummingbird was sucking blood from my shoulder. I reached to swat it, but it was gone. My shoulder itched like crazy, but there had been no mosquito. Weiskopf had hung up.

And I couldn't remember Sam. I couldn't remember who he was to me, what I felt about him, or why we'd done anything together; all I had left of Sam was empty words. Then, without the feelings to color them, the facts themselves began to drop away; I ceased believing them. I could see the whole process unfold in my mind between the time I hung up the phone and washed my hands until I reentered the kitchen and took my place at the butcher block. Stanislavski in reverse—a draining away of meanings! Goldeh looked different, but it wasn't her; the eye through which I saw her had changed.

"My ears are burning," she said. "Someone has been talking about me."

From his station at the sink Jerry turned to me and winked. His radio was blasting the Horst Wessel Song, or so I imagined. "Screw you," I said. "And turn that thing off." He looked hurt, more than hurt, afflicted.

I was sweating. My heart was racing, and I couldn't keep the walls vertical. I sat down on the floor and put my head between my knees. *She can change anything. She can rectify anything. I can't ever pick up the phone again. I can't turn on the radio or the TV. My own memory is a ball of clay. I don't know who the hell I am.*

"Al . . ." Goldeh was bending over me. "Are you sick? Do you want maybe a glass water?"

"He's all right," Jerry said. "Same thing happened to me."

"I'm not all right," I said.

I punched out early and took the bus home. Actually, I got out a few blocks from my place and walked the rest of the way. A standee down the aisle had been listening to a small transistor radio, and I didn't dare let myself hear it. My home answering machine had four messages tallied on it—call-backs for auditions?—but I couldn't take the chance. I took the phone off the hook, pulled down the shades and went to bed.

In the dream, the judge asked me, "Do you know someone named Sam Yudelson?"

"No," I said.

"You're not acquainted with Sam Yudelson?"

"Well," I said, "I may be acquainted with him, but I don't actually know him. I know his mother, Goldeh, though, from work."

"Then you can't tell us anything about Sam Yudelson?"

"Well, I guess I could, this and that, nothing important. You know, you're acquainted with lots of people. It's all pretty much the same."

Like a trap springing shut, I sat up in bed, hyperventilating. I was straining to focus inward on things no longer there. I had to call Goldeh. It was six o'clock. The phone book was full of names and pages, and I kept forgetting the order of the letters. At last—"Hello, can I speak to Goldeh?"

"Al, is that you?"

"Yes. Can I speak to her?"

"This is Sam."

"I know it is. I need to speak to Goldeh."

"This is Sam Yudelson. What's the matter? You sound funny."

"I know who you are. I need to talk to Goldeh."

"Screw you too."

Goldeh got on the phone: "Hallo?"

"Goldeh, this is Al. Listen to me carefully. Do you know about an outfit called the Institute for Historical Integrity?"

"What are you, kidding? Those *mamzers?* What do you want, I should

give you a contribution? You're a member? You should go and get cholera. This Institution is a liar what hates a Jew and kills a Jew."

"Goldeh, I know. I know. I'm not one of them. I'm not a Jew hater. You know me. You gave me cookies and milk when I was still watching Mickey Mouse Club." Sam had been there when I watched Mickey Mouse Club—I think. Sam had eaten cookies and milk with me—I think. They had stolen a part of my life.

"You watch too much TV, Al."

"Listen to me. They're after you."

"After me? Who? What for?"

"The Institute. A pal of Jerry's named Lydia Weiskopf. And it has something to do with the mayor of Kovno."

"Matzok!"

"What?"

"Matzok! Oh my God! He knows who I am! He knows where I am!"

"Goldeh . . ."

"I don't want to hear this. I don't want to know any more. I don't want to die any more."

"They're not trying to kill you, Goldeh." I said this to comfort her, but I knew that what they were after was really much worse. "Listen to me. Don't pick up the phone. This has to be the last time you talk to anybody on the phone. And don't watch TV or listen to the radio either."

She hung up. I had to make sure that Goldeh understood, that she would not pick up the phone. A while later I called again.

"Hallo?"

"Goldeh, I told you not to answer."

"Who is this?"

"It's me, Al."

"It's who?"

I hung up. So it was already too late!

They go from house to house, looking for signs prophesied by the previous Dalai Lama. Maybe the infant has a birthmark on the sole of one foot, or some peculiar mannerism. Maybe the parents live under a certain cliff in a certain village or have a certain unusual surname. The *previous* Dalai Lama is ashes now, but he soon reincarnates as a human infant. The holy men find the infant—"*tulku*." They take him away to tutor him about his past incarnations; eventually, he "remembers" everything. Memory is such a malleable and fragile thing, and yet, a dozen incarnations from now—what's that, a thousand years?—the Dalai Lama may "remember" his visit to Auschwitz. I wonder if the Institute has thought of that.

I raced downstairs to see if I couldn't pull Goldeh's mind out of the fire. I hailed a cab and gave the cabby too much money to take me straight to

Goldeh's, because I couldn't be bothered to wait for change. "Shut off the radio," I barked.

"Whatever you say, boss."

There was a commotion outside Goldeh's apartment building. An ambulance blocked our way, and policemen with notebooks and walkie-talkies were scurrying around, pushing back the crowd and making self-important noises. I just managed to see a man and a woman in white lift the mangled body off the cobblestones and onto a stretcher before they covered its face and slid it into the ambulance. I knew him.

Choking back tears, I found my way through the crowd, slipped into the security door when someone came out, and pounded up four flights of stairs to Goldeh's little place. I beat my fist against it. "Goldeh! Open up. It's me, Al."

A rotund little man with curly red hair and thick bifocals opened the door. "*Nu?*" he said.

It took me a moment to remember his name, and that we were supposed to be intimates. I combed my memory for information. Nothing was missing, but it took a Herculean effort to invest any of it with meaning. Then I performed one of the most challenging thespian exercises I've ever essayed: I had to *invent* within myself the truth of something I already knew to be true—that Sam Yudelson was my very old friend—and I had to act appropriately through gesture and intonation.

"Sam, I'm sorry I acted so funny on the phone, but I've got to talk to your mom. There are some people who want to hurt her."

"What's happening outside?"

"I don't know," I lied. "Did anybody call after I called? Was anybody here to see her?"

"Yeah. Both. What's going on? Who the hell would want to hurt my mother?"

"Who was here?"

"Some little punk. I don't know. What is this, some role you're working up? Come in and watch TV, have a soda pop." He threw open the door, and I could see the television screen next to the window, its glare competing with the late afternoon sun and its sound just audible above the sirens and voices from the street. I couldn't see Goldeh.

"Where is she?"

"Get your ass in here. What is this?"

There were U-boats and goose-stepping mobs on TV, cinematic collages of newspaper headlines, General Eisenhower waving from a jeep, Nazi officers in stiff-shouldered coats with crossing leather straps, raising their hands over their heads with a look of doom, then scenes of the international diamond trade, greenbacks rolling off the presses, old men with rotted teeth and bulging purses smiling downstage center. I was transfixed.

Sam kept watching me. He didn't see any of it. "You okay?" he said. "You want a glass of water or something?" I yelled and fell against him. A pit bull had clamped its teeth on my calf—no, it wasn't there. There was nothing there. Sam grasped my shoulders and held me at arm's length, regarding me with concern.

How many people had seen that broadcast? How many more such broadcasts would there be, on how many stations, in how many countries? I couldn't remember what Auschwitz was, or Dachau or Treblinka. But something bad was going on, and Goldeh was in trouble. "You have to tell me what happened with Goldeh."

"There was that call after your first one. She acted funny. Then the kid came and talked to her. They went in her bedroom. He was bawling, apologizing for something, I dunno. I couldn't hear much, because I was watching TV. You know. Then he left. Then my mother left. What's going on?"

"Where did she go?"

"To schul, to see the rabbi about something. I dunno."

"Sam, you've got to turn off the TV right now, and don't watch it, and don't listen to the radio or answer the telephone until I tell you."

"You're crazy, goddamnit! You were always crazy, you know that? Goddamn actor!"

I was running down the stairs. There was a synagogue two blocks away, down an alley and across a small square, and I didn't know, but I was betting that that was where Goldeh was headed. The ambulance carrying Jerry's body had gone, and the crowd was dissipating. Only one cop remained. "Hey, you! Where you running?"

In a clearer state of mind, I would not have stopped, or, having stopped, I wouldn't have gotten into the car with him. The police radio was haywire with snippets of news, music, and imperious voices speaking half sentences; one of the voices was Weiskopf's, and I thought I heard Mr. Matsok's name mentioned, the name that Goldeh had spoken with such horror.

The cop ignored the noise and started talking at me as if we were already in the middle of a long conversation. "First off, there was only two hundred thousand, tops, not six million, like they say. Most of them died of typhus, and they weren't the only ones, but boy, they made those Germans pay through the nose, didn't they? You gotta hand it to 'em. Only it isn't true. None of it. You should watch who you hang around with. Your friend's a Zionist whore. She's not going to testify."

I exploded out the door and started running again. The policeman was laughing, "Hey, you're not a suspect, you know; it was hit and run! They'll never catch the guy. You, some highly placed individuals just want to wise up, get it?"

"Forget it!" I don't think he heard me. Panting between coughs, I cov-

ered the two blocks to the square and decided to give up smoking for good. I galloped down the alley and across the park, certain my heart would explode any second. Goldeh was trudging through a grove of trees near the old plaster-domed amphitheater on the far edge. I came closer and saw that she was limping. When I called out to her, she ignored me.

I ran alongside her, and at last she stopped. "Who are you? What do you want?"

"Don't you know me, Goldeh?"

She looked all around the square. Except for us two, it was empty. "Do you want to kill me?" she whispered. "Do you want to kill yourself? Get away from me, Al. Go home!"

"Jerry told you," I said.

"Yeah, he told me, and now he's dead, poor boy. But don't you think they can change that? Don't be surprised if tomorrow, kaboom! he was never there to die. No dishwasher! No ring in the nose! Even his mother wouldn't remember."

"They didn't get to *you*, Goldeh. You still know everything. What about the phone call, the one after mine? Wasn't it Weiskopf?"

"Yeah, it was Weiskopf. Walk with me, if you're not going to go. I have to get to the schul, the rabbi, the lawyer."

We walked. "Here's hoping they're not listening to the radio," I said, "or the TV or a telephone. Why didn't it work with *you*, Goldeh?"

"I'm dried up, that's why. I'm a turtle in a turtle in a turtle." She pressed her forefinger against her heart. "There's nothing in here to take away. Ever since I left Kovno in 1943, my heart is nothing but numbers and words. They can't take a thing from me."

"You're a kind, warm, loving person, Goldeh."

"I'm a better actor than you are, Al."

"No, Goldeh."

"You're a *naar*, a fool." She stopped to catch her breath. The muscles in her left leg were trembling in spasm.

"What's wrong with your leg? Why are you limping?"

"You don't see them?" she said.

"See what?"

"The dogs, Al! The memory dogs. They can't take a bite out of me, but they won't let go."

We had crossed behind the amphitheater and were standing between it and a dumpster next to the rear loading dock. Goldeh's synagogue was just down the block, but we had to wait for her leg to regain a little strength. Then the men with the black gloves were coming through the trees and down the block, and Lydia Weiskopf herself was standing across the street with a tall, gaunt old man in a tuxedo jacket. He was holding two pit bulls, muscles and teeth, at the end of chain leashes.

"Goldeh, forgive me, but I think we have to hide in the dumpster."

"So what else is new?"

Shielded from view by the dumpster itself, we mounted the loading dock, and from there, staying low, I helped Goldeh slide in. She stumbled and hit her head against the inside wall as she fell to the bottom. Now there was blood spreading on her kerchief. "It's nothing," but she had to sit down. I climbed in after her and spread a few sheets of corrugated cardboard for Goldeh to sit on.

"I better tell you this," she said. "Maybe it will do some good in case they finish me, but you live."

"Don't be ridiculous."

"Just before the Germans invaded Lithuania—1941 it was—the good people of Kovno . . . "

Weiskopf spoke for the mayor of Kovno. "Al, you are being extremely silly. We know you are in there. I don't know why you think you're putting Goldeh through all this insanity." I didn't answer. In a lower voice, I heard her say, "For God's sake, Kazys, pull your dogs back."

"I've spent a lot of money on you, Doctor, to have you order me around."—The voice of someone who had been smoking non-filters a lot longer than I had.

"You've spent a lot of money to have it all be wasted. Get the dogs out of here and tell your men to bring the van round. And make sure they keep it idling, for God's sake, as long as we're feeding off the engine."

The barking and scratching abated. "Al, Goldeh, for heaven's sake! I don't know what kind of a monster you think I am. Are you going to stay in that garbage until nightfall? I'm going to come up onto the loading dock. Let me help you out of there."

Goldeh whispered, "Al, don't let her. This is the one from the telephone. This is the one from the dogs on my leg."

I shouted, "Go to hell, Lydia."

I heard some men trying to dissuade her, but Weiskopf went up onto the loading dock, and we saw her come to the edge of the dumpster. She looked down at us among the cabbages, bottles and crushed boxes. Frightened as I was, I felt ridiculous.

She said, "Mrs. Yudelson, what on earth did Jerry tell you, to make you want to put up with *this?*"

"You sent your dogs through the telephone line," Goldeh said.

"I beg your pardon?"

"Don't be cute, Lydia," I said. "You did it to me too, remember? Three times, Lydia—through the earphones, the telephone, and then the TV with how many thousands of other people, Lydia? How many others' memories are you *rectifying?*"

"I don't believe this," Weiskopf said. "Dogs through the phone line? You must be crazy. As for the TV, frankly, I wish we could get that kind of air

time, but the Cohens and Levis have it all sewn up. Mrs. Yudelson, what kind of fairy stories has Al been telling you?"

"What about that night at your garage," I said. "Was that a fairy story, Lydia?"

Weiskopf threw up her arms. "Really, Al, I don't know what I can say to you if you are going to let your imagination run wild this way. I showed you my little device. I did a demonstration, and I mentioned to you that I thought it could have eventual applications over various media—*eventual*, Al, *eventual*—for historical research and so on. Did you think I was going satellite tomorrow? This is Lydia Weiskopf talking, for heaven's sake, not AT&T!"

The shadows, like rising water, were climbing up the sides of the dumpster as the sun went down. Goldeh's bleeding had stopped; it was only a scrape, after all, though it might take a stitch or two. *Lydia isn't AT&T. AT&T doesn't have a cheesecake mustache, doesn't serve instant coffee, doesn't live in a garage with tacked-up panelboard and tables full of junk. The rat, the mosquito, Sam's TV, the police radio—side effects of the charge to my brain from her electro-dingsboomps.* "Maybe we should get out of here, Goldeh," I said.

"When she takes off the dogs I'll go. They killed the boy, don't forget."

"What?" said Weiskopf. "What boy?"

"Jerry," I said. "He got hit by a car a little while ago outside Goldeh's."

"I didn't know! How horrible! I'm . . . I'm shocked. He was my friend, you know."

"She is a liar." Goldeh shook me. "She is a killer. What is she doing following us?"

No. Everything Lydia says makes sense. She's like my Aunt Elaine, my kind Aunt Elaine, eccentric but honest to a fault. I believe her fully and deeply. And I want to please her. If there is something wrong with somebody, it's me, not her. I feel it in my stomach, in my shoulders, in my face.

"Maybe I got carried away," I said. "So they're anti-Semites! The world is full of their kind; that doesn't make them all murderers. I think maybe I went a little crazy. What about you, Goldeh?"

Weiskopf crouched down to speak to us more intimately. "Matsok and I want to talk, that's all. He's willing to take his chances in court, to take his stand on the truth. We don't have to kill anybody. Come out and be reasonable."

A policeman peeked in. "What's going on here? . . . Oh, Dr. Weiskopf, Mr. Matsok! Excuse me."

"That's all right," Matsok said. "Let your friends know we have her, will you?"

"Of course, sir. You better hurry, though. Not all the guys are on board, y'know."

Goldeh's all right. She's just confused now. That's why she's backing away from me. "Lydia, help us out of here."

Weiskopf offered us her arm. I grabbed it. She leaned back, and I scrambled up the dumpster wall, slick with grease. As I edged up onto the loading dock, I saw the Mayor of Kovno, an elegant man with a skeletal face, standing at Weiskopf's side, tapping and tapping his foot. "Come on, Doctor, the van is waiting."

One of the men in black gloves was on the loading dock too. "Do you want me to hook in the rectifier, Doc? It's going, don't worry, but we have to rev her up, and it's gonna take a minute."

I set my feet against the lip of the dumpster and yanked backward, catapulting Weiskopf down into the garbage. She flailed and slipped several times before managing to stand up, covered with slime. I was still hanging onto the edge.

Above, Matsok blurted out, "I don't like this. Bring the van over."

The van screeched near. The side door slid open. Inside, I saw Weiskopf's rectifier, the screen, the meters and keyboard, the bank of knife-blade switches Weiskopf had chased poor Jerry from. Two technicians sat before it, riding the dials. Matsok climbed down from the loading dock and into the van.

I'm William S. Hart, cowboy hero of the silent screen, leaping car-to-car atop a moving train. My six-gun smoking, its chambers emptied, I throw it away and hurl myself at the robbers. In fact, it was a half-eaten beef jerky caught in my cuff. I bellied onto the dock and leapt toward the rectifier.

Matsok and the two techies were so astounded to have company—no more astounded than the company, truth to tell—that they offered no resistance. They fell out of my way, covering their heads as if I were swinging nunchuks. I dived for Jerry's knife-blade switches—fire-engine red—as Matsok scrambled toward the front of the van, shouting, "Go! Go! Drive!" I braced myself against the ceiling and one techy's face.

We heard someone outside shout as the van pulled away: "Wait for me!" Then a crash—glass breaking, metal bending. In his haste, the driver had sideswiped the dumpster. Someone between had been knocked to the ground—we heard him groan, and a dog piteously squealed.

"Stop! It's my Schnookyputz!"—Matsok's voice.

"Mr. Matsok . . ."—an underling—"we have to leave him. We've been spotted. It's on the open frequency. There'll be others here soon, not ours."

I hit the red switches. Weiskopf's machine went dead, and at the same instant there was a loud scream from inside the dumpster.

I jumped out and slammed the side door shut against the techies, who were just coming to the conclusion that I was more Woody Allen than

John Wayne. I slid through a stream of oil issuing from the van and scrabbled onto the loading dock as the van clanked away.

Down in the dumpster, Weiskopf was yelling. She pulled at the flesh of her thighs, calves, neck. It was the dogs, Goldeh's dogs. "Get them off me!"

"They're *your* dogs, Doctor." Goldeh stood as Weiskopf slipped and fell into a mass of spoiled picnic leavings and disintegrating newspapers.

I didn't see the dogs, and yet, for the loudness of their barking, the dumpster must have been their throat. Then other noises crowded in, hissing, growling, roaring, trumpeting, coming from all directions and converging on the steel box.

I could hear them bounding and fighting. There was the thick smell of zoos, kennels, pet stores—of wild animals in civilized places. Now Weiskopf, with her four doctorates, was spread-eagled against the wall of the dumpster, eyes shocked wide, every muscle quivering as she screamed and screamed. "My face! Get them off my face, my arms, my stomach, my neck. . . !"

I reached down for Goldeh. She held my hand and chinned out as I pulled.

Just beyond the square, I heard sirens and distorted, amplified voices—work-a-day good guys casing an abandoned Ford Econoline Van with a bashed front end and a strange interior. The square looked empty except for a small, bearded man in a yarmulkeh. He had just come from the nearby street and was running toward us. "Goldeh, *voos gevenn?* Who is this man? What's going on?"

"You don't hear them, all the animals, the memory dogs?"

"I hear it in a garbage can a crazy woman screaming."

"Ah! You have excellent ears," Goldeh said. "Everyone should have such ears!"

Then I saw the man in black gloves sitting next to a dead, mangled pit bull on the spalled concrete beyond the dumpster. His face was buried in his hands, his clothes in tatters. "It's all true. It's all true. Please, God, I don't want it to come back to me, not this way. I want it to be the other way."

Suddenly I remembered Howard Guminiak. It had been a rope! There was a rope from the rafters. He had *swung* up to the loft! I remembered Sam Yudelson. I remembered Auschwitz.

Weiskopf, exhausted, was sobbing now. The rabbi eyed the dumpster as if it were a strange predator. "I don't understand any of this. I was on my way to see the Dalai Lama."

"A rock concert?" said Goldeh.

"Look! Police cars! What is this *tumml,* Goldeleh? The Dalai Lama is going to talk about suffering, and I'll miss it."

"He's too late." Goldeh sighed. She looked down at her coat, shook her

head, and busied herself picking bits of trash off the fabric. "Now that everything was the way it was again, I'm going home. Al, you'll walk me?"

"Sure, Goldeh."

"I want to rest. I'm going to Chicago to testify day after tomorrow."

"*Was the way it was?*" The rabbi was perplexed.

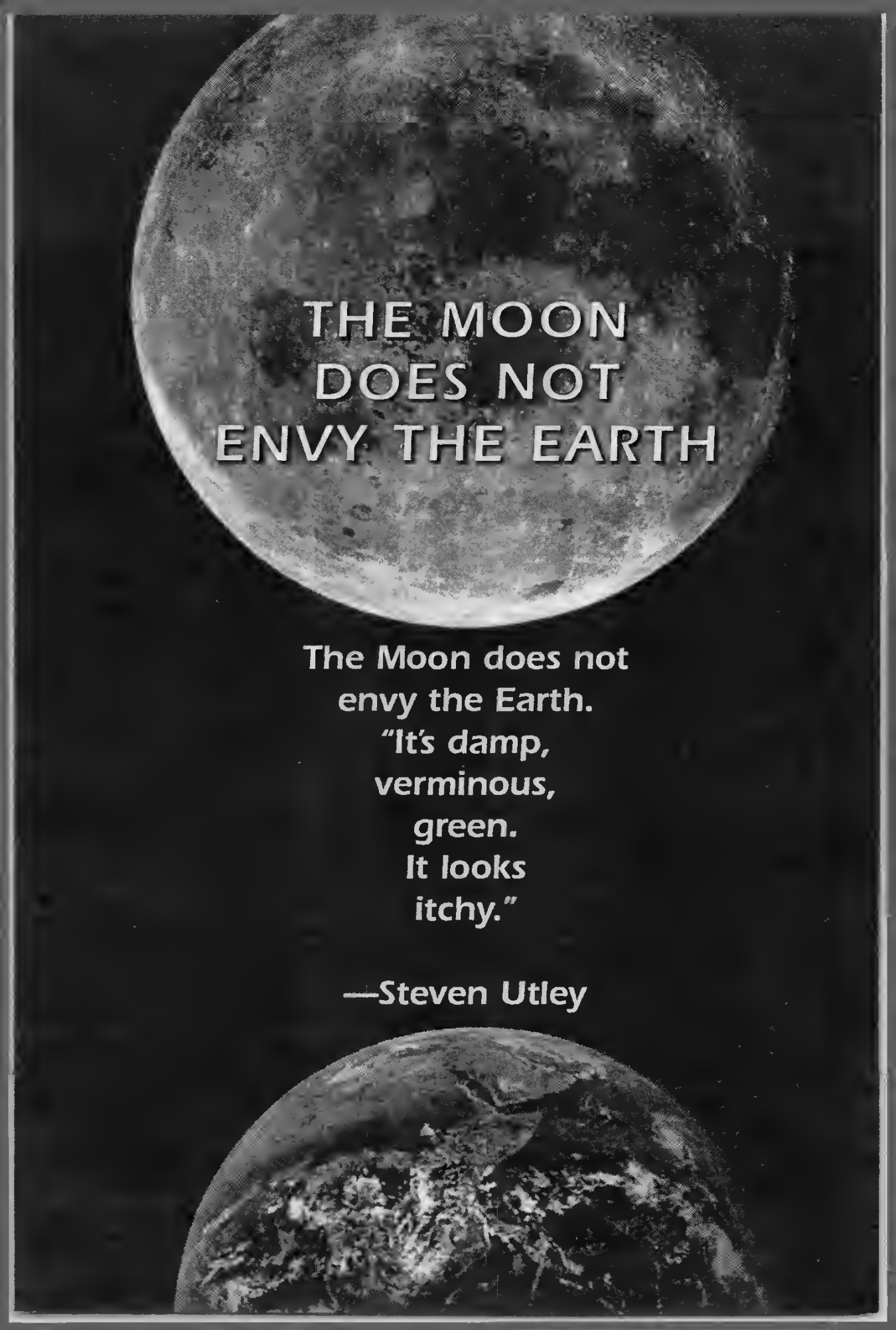
"And Al," said Goldeh, "you'll remember how to make chopped liver without me?"

"Yeah," I said. "I'll remember."

She was laughing. "Go! Go to your Dalai before the police come!"—little pushes to the rabbi's sleeve. To me: "Actor! You're maybe not so bad after all! You'll make a living to remember what never was!"

"Yeah," I said, "but only on stage. And what *was*, Goldeh, I won't forget." ●




THE MOON
DOES NOT
ENVY THE EARTH
The Moon does not
envy the Earth.
"It's damp,
verminous,
green.
It looks
itchy."
—Steven Utley

Norman Spinrad

In his first piece of fiction for us in seven years, our insightful and provocative literary critic, Norman Spinrad, shows us why it pays to be careful in . . .

THE YEAR OF THE MOUSE

"Mess not with the Mouse."

"*Mess not with the Mouse?* We fly you to California *business* class and install you in a luxurious hotel in Anaheim and when you are summoned to give an account of the situation, you spout degenerate Taoist crypticisms?"

Xian Bai managed to resist the impulse to tug at the tight collar of his dress shirt, so uncomfortable after two weeks in Southern California, where even high level executives felt free to attend meetings in casual attire.

"This is not a Taoist epigram," he explained. "It is a precept common in high American corporate circles, where it is thought highly unwise to arouse the ire of the Disney Corporation."

Had the Deputy Minister for Overseas Cultural Relations been a Long Nose, his pale white skin would no doubt have turned crimson with rage. Despite the handicap of the lack of this Caucasian ability, he managed to make his displeasure clear enough by banging his hand on the desk with sufficient force to rattle the tea service.

"And what is the People's Republic of China, some Banana Republic

owned by the United Fruit Corporation?" the Deputy Minister shouted. "We are a billion and a quarter people! We are the largest and fastest growing market in the world! We have the world's largest army! We have nuclear missiles! How dare the Mouse presume so outrageously to mess with *us!*"

He calmed himself with a sip of tea and regarded Xian Bai with a colder species of outrage. "You *did* make this clear with sufficient force?"

"Indeed I did!" Xian Bai was constrained to reply firmly.

But he was dissembling. Two weeks in Anaheim to obtain a meeting with a Vice President in charge of overseas marketing and the results of that conversation had been enough to convince him that such force did not exist.

"Get real, Xian," that individual had advised him. "The idea that the Yellow Peril was gonna storm the beaches at Orlando went out with Ronald Reagan. What are you gonna do, nuke *Pirates of the Caribbean?*"

"But China is the largest consumer market in the world—"

"And you guys have been screwing us out of it since that Dalai Lama film dust-up that cost Ovitz his job and us a bundle for the golden parachute! You guys made a real bad career move."

The Disney Vice President glanced heavenward.

"You pissed Michael off."

"And this film is your vengeance?"

The Disney Vice President grinned like the Lion King.

"The bottom line," he said, "is always the best revenge."

The minions of the Mouse had not been reticent in allowing Xian Bai to attend a preview screening of *The Long March,* though at the reception afterward—white wine, simple dim sum, lo mein noodles, barbecued spare ribs—a disgruntled American reporter had complained that this was the "B-list" screening, those privileged to enjoy "A-list" prerogatives being treated to lobster, caviar, and champagne.

This mattered not to Xian Bai, since the film itself had quite destroyed his appetite—being an animated cartoon version of the heroic Long March of the Chinese Revolution, dripping with syrupy music, festooned with Busby Berkley choreography, and featuring Chou En Lai as a fox, Chiang Kai Shek as a mongoose, the People's Army as happy ants, and starring *Chairman Mao* himself as a grinning and rather overweight panda.

"You *do* realize that the premiere of this atrocity in the United States will result in the immediate and permanent closure of the Chinese market to all your enterprises," Xian Bai informed the Disney Vice President as he was instructed to do.

"No problem, guy, you want us to premiere *The Long March* in China, you've got it."

"You cannot seriously expect to ever release this film in China!"

"Better inside the tent pissing out, than outside the tent pissing in, in the immortal words of Lyndon Johnson."

"This means what. . . ?"

"It means that one way or the other, we *will* crack open the Chinese market, but we don't need it to make the numbers golden. *The Long March* cost less than fifty million to make, negative and promo costs still keep the total under a hundred, and we've already laid off twice that on the merchandising rights! So the film's in the money before we even release it. We figure Mao the stuffed panda alone will gross enough this Christmas to cover the whole production budget!"

"You . . . you plan to market *Chairman Mao* as stuffed panda?" Xian Bai considered himself an apolitical modern Chinese pragmatist, but this was too much even for him.

"The kids we ran the marketing tests on *loved* it. Mao Tze Tung's gonna be ten times more popular as a panda doll than he ever was in the flesh."

The Disney Vice President leaned closer. "If I let you in on something *really* hot, can you keep a secret?" he said conspiratorially.

"I can make no such commitment. . . ."

The Disney Vice President shrugged. "Well, what the hell, it's a fait accompli anyway. We've decided to stop renting out our characters to front other people's fast food franchises, and get into the business ourselves. Mickey and Donald and the old gang are tied up in long term contracts, but Mao the Panda—"

"You cannot be serious!"

"I *know* what you're thinking, dumb move, the market's oversaturated with hamburger and pizza and taco and fried chicken chains already. But . . . *nobody's doing Chinese!* Panda Pagodas in every shopping mall in the world! Fronted by Mao the Panda himself! We'll hang poor Ronald McDonald from his own Golden Arches!"

Even the edited and explicated version of this conversation was difficult for the Deputy Minister for Overseas Cultural Relations to comprehend.

"How can they expect to get away with this affront to the Middle Kingdom?" he demanded. "How can the American government permit this? You did make it clear that we may retaliate against other American corporations as well?"

Xian Bai nodded miserably.

"And?" demanded the Deputy Minister.

Xian Bai took a deep breath, fixed his gaze upon the desktop. "They . . . they issued their own ultimatum."

"An ultimatum?" whispered the Deputy Minister, clearly dumbfounded.

"The People's Republic of China must allow *The Long March* to open simultaneously in no less than one thousand theaters nationwide with

Disney to retain sixty percent of the gross, must cede the necessary real estate for the establishment of no less than one thousand Panda Pagodas, plus Disneyworlds in Shanghai, Peking, and Hong Kong, and grant a one hundred percent tax abatement for a period of fifty years on these properties, or . . ."

"Or?"

"Or, I was told, the Mouse shall roar, Uncle Scrooge will dip into his money bin, Dumbo will fly, and the Big Bad Wolf will huff and puff and blow our house down!"

At first, it appeared that vast black storm-fronts were approaching China from several directions, then trepidation turned to bemused delight as the black clouds resolved into thousands upon untold thousands of kites.

Black kites. All identical.

All in the form of the happily grinning face of the world-famous Mouse.

No, not kites—

"Balloons!" shouted the Deputy Minister For Overseas Cultural Affairs. "Millions upon millions of them floating gently down from the skies all over China!"

"Amusing," said Xian Bai, "but I don't—"

"*Amusing!*" screamed the Deputy Minister, reaching into a pocket and extracting a deflated version of the apparently offending item. "They deflate in a moment to the size of a poor man's wallet! They reinflate with a few puffs of air!"

This ability he then proceeded to demonstrate, producing an example of the head of the famous Mouse somewhat larger than a soccer ball.

"Do you realize what this is, you imbecile?" he demanded.

Xian Bai regarded the grinning balloon face in perplexity. All seemed quite ordinary, except for the bulb at the end of the long white rodent's muzzle, which, instead of the traditional black ball, seemed to be a small silvery packet of some sort of electronic circuitry. . . .

"*This,*" said the Deputy Minister, poking Xian Bai's nose with that of Mickey, "is a satellite television antenna!"

If somewhere the spirit of Chairman Mao might be scowling down unhappily on this spectacle, surely that of Deng Shao Ping would approve, Xian Bai told himself, and at any rate Mao the Panda smiled down benignly on his enterprise from atop the steepled entrance as he cut the ribbon to open his fifth Panda Pagoda.

After all, as Lenin himself had pointed out, you can't make a revolution without breaking eggs, though in this case the standard recipes supplied in *Mao the Panda's Little Red Book* were admirably parsimonious with this relatively expensive ingredient.

Xian Bai, partly as punishment, and partly because there was no one more experienced to dispatch, had been sent back to Anaheim to confront the minions of the Mouse. This time, however, it was a cut-rate charter flight and a grim motel in Santa Ana, and when he finally penetrated the bureaucratic layers to the Vice Presidential level, he found himself dealing with the legal department, with what the natives called a "Suit," a hard-eyed fellow replete with tie and wire-rim glasses.

"No international laws, treaties, or conventions were violated," Xian Bai was told firmly. "The balloon antennas were released in international airspace."

"And just *happened* to drift en masse over China?"

The Suit shrugged. "An act of God," he said. "You could try suing the Pope, I suppose—I could give you my brother-in-law's card—but you'll get nowhere with us."

"Even though the only channel the balloon antennas will receive is the Disney Channel? Which just *happens* to have begun broadcasting in Mandarin and Cantonese?"

"The satellite is in geosynchronous orbit, which is international territory. We have a legal right to broadcast whatever we like in whatever languages we choose."

"But it's illegal for Chinese citizens to own satellite dishes. It's illegal for Chinese citizens to watch foreign broadcasts!"

The Suit displayed a porcelain crocodile grin that was a perfect example of the Beverly Hills dentist's art. "That's *your* problem," he said. "*Our* problem is your refusal to allow us to release *The Long March* in China and rake in the profits from the merchandising tie-ins and Panda Pagodas."

The grin vanished, but the crocodile remained.

"And unless *our* problem evaporates by the film's international release date," said the Suit, "*your* problem is going to get a lot worse."

"Worse. . . ?" stammered Xian Bai.

How could it get worse? There was no way to confiscate the millions of balloon antennas—at the approach of the police, they were just deflated and hidden away, to be redeployed the moment it was safe. Millions upon millions of Chinese were watching broadcasts from the Disneyworlds, cartoons and feature-length animated films, endless trailers for *The Long March*, endless commercials for the tie-in merchandising, endless promotions for the Panda Pagodas. The demand for the opening of China to the minions of the Mouse was building to a frenzy.

According to the latest public opinion polls, forty-one million Chinese people already believed that Mao Tze Tung had been born with black and white fur.

"*Much* worse," said the Suit. "We could give free air time to the Dalai Lama. We could broadcast clips of the Tien An Mien massacre with mu-

sic by Nine Inch Nails. We could subject your people to reruns of old Charlie Chan movies. And if none of that worked, there's always the ultimate weapon . . ."

"The . . . ultimate weapon. . . ?"

"We broadcast the first twenty minutes of *The Long March* in clear, scramble the rest of it, force everyone in China to buy expensive decoders to see it, and blame the Communist Party."

The crocodile grin returned.

"Do you *really* believe any government could retain the Mandate of Heaven after that?"

"Mess not with the Mouse . . ." sighed Xian Bai.

"Not a good career move at all," agreed the Suit. "On the other hand, in return for say 5 percent of the gross, I could aid *you* in making a sweet one. In the words of Mao the Panda, one hand washes the other."

Well, the Chinese people had not survived several thousand years of turbulent history without paying due attention to the sacred bottom line. Indeed one might argue that the bottom line, like most else, had been a Chinese invention. Especially when there was rich profit to be made in convincing yourself that it was true.

And for those Panda Pagoda franchisees who had trouble swallowing that one, *Mao the Panda's Little Red Book,* in return for the Mouse's 30 percent of the gross, provided more than standard recipes and accounting procedures, it provided an ideological rationale.

Fast food was, after all, a Chinese invention itself. Dim sum, wonton soup, noodles, and stir-fried vegetables with a bit of meat, were quicker to make, tastier, ecologically more benign, and far more nutritious than hamburgers, pizzas, and greasy fried chicken parts.

And since the ingredients were much cheaper, the profit margin was higher too.

Today China, tomorrow the world, promised Chairman Mao the Panda.

And what did it matter if *Mao the Panda's Little Red Book* had appropriated the epigram from Confucius or Lao Tze or the Buddha himself if Chairman Mao the Panda's words had the ring of truth?

The wise man does well by doing good.

It was enough to keep Xian Bai smiling all the way on his frequent visits to the bank. ●



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Gregory Feeley

The medieval world and the modern; illuminated manuscripts and laptop computers; and neoplatonism and the age of reason; are all part of the wonderful tapestry woven in . . .

ANIMAE CELESTES

Illustration by Steve Cavallo

All happy theories are alike; each generation reacts to them in its own way.

In 1489 Marcilio Ficino wrote of the *spiritus,* a vapor which circulates throughout the nervous system, conveying sensory perception and mediating between the corporeal body and the immortal soul. A valuable faculty: yet while soldiers take care of their weapons, as musicians do their instruments and hunters their hounds, "the priests of the Muses, who seek the highest truth and good, are careless enough (alas) to neglect an instrument by which one can measure and grasp the whole world. Such an instrument is the spirit. . . . Formed from the subtler blood by the heart's heat, it flies to the brain, where the soul employs it assiduously for both the interior and the exterior senses."

This small book was posthumously collected with others in Ficino's *Opera Omni,* published in an expensive edition (there was in 1576 no other kind) in Basel, and distributed throughout the libraries of the learned. In 1713 Henri Lavalle, a natural philosopher at the University of Paris, read the study and exclaimed, "Of course—it is the *esprits* of Descartes, dimly prefigured by the Florentine Platonist. The body, in short, is a perfect mechanism, like the nested spheres of the heavens, and the *spiritus* is aether." In 1849 Odeon Puysage, an engineering student studying Renaissance science, came upon Ficino's tract and observed in his notes that "*Spiritus = système pneumatique. 'Cordis Calore'—cf. la puissance motrice du feu (Carnot).*" Reading in search of a topic for his doctoral thesis, Emile Weissmann found the fat marbled volume (rebound by the librarians some decades earlier) in 1908 and told his skeptical advisor that "The spiritus acts as doorkeeper to the ego. The intervention of the repression mechanism would take place here." And in 1994 Amy Bunker, a Boston graduate student studying on a Fulbright scholarship, came across the passage in the Rare Book Room and nudged her boyfriend Paul, who was reading Marivaux. "Sounds like a user interface, doesn't it? The spiritus is Windows for human consciousness."

But how could such a system operate, with one foot in the material world and the other in eternity? Ficino goes on to explain that the spirit requires care, especially the spirit of studious men, for its constant use in thinking and imagining will consume it ("Like motor oil?" asked Paul). Its constituent elements are drawn from the finer part of the blood, leaving the rest thick and black. Studious men thus tend to be of melancholy temperament, the way vampire victims are anemic. Ficino offers a detailed regime of proper diet and activities—wines and aromatic foods, wholesome odors, pure air and sunshine, and music—to keep the phlegm, bile, and blood in proper maintenance, although music proves to be the most important item, since songs, like the spirit itself, are aerial in nature.

"Sound consists of aerial movement," Amy explained as they rode the

Metro home. "Whereas sight merely transmits images. And since the spirit is composed of aerial movements, sounds affect it more profoundly."

"Sound is analog, while light is merely digital," said Paul.

"Um, maybe. But Ficino believed that the world is a single organism, with a soul, and thus a spirit to mediate it. And the *spiritus mundi* is made of *quinta essentia,* the fifth element, which contains the powers of the four humors that supply the human spiritus. So if a person can make his spiritus sufficiently like the *spiritus mundi,* he can enjoy an influx from it, which will nourish and purify his spirit, and thus his soul. So you should make all these adjustments to your spiritus—you can use talismans, planetary influences, whatever—so that it is in proper sympathy with the world spirit."

"Getting a download from the *spiritus mundi,*" remarked Paul, who had a good Catholic education but knew nothing of Renaissance theology save what his studies in Enlightenment literature had suggested. "Praise the Paraclete, I have gotten a good connection!"

"Don't make fun," said Amy mildly. "Ficino was being a good Neoplatonist, and his treatises were very influential."

"Doesn't even sound like he's a good Christian. World spirit? Did the Pope know about this?"

"It's no stranger than the aetheric vehicle, and the Neoplatonists didn't get attacked for that."

"Aetheric vehicle? Is this something the nuns forgot to teach us?"

"Hang on, it's in my notes." Amy pulled out her laptop and flipped it open. An entity of pure reason (the soulless calculating engine that medieval thinkers never encountered but vividly imagined), the machine displayed her afternoon's notes and then located, at her command, the entry on *Vehiculum.* "Here it is. The Neoplatonists believed that the soul crossed the heavens in this aetheric vehicle before entering the human body. It begins as a perfect shining orb, but exposure to physical matter corrupts it, making it dark and leaden. And unless you purify it with an infusion of aetheric forces, it will drag down your soul at death, preventing its ascent into the heavens."

"That sounds like paganism," Paul complained. "No wonder the church got worried about all these monks reading Greek manuscripts."

The doors hissed open as the train stopped and two Maghrebi men came in. They sat opposite Amy and Paul, apparently oblivious of the sign that reserved such seats for the *Mutilés de Guerre.* They were dressed in the garb of construction workers, one of the better jobs available to the pool of African immigrant workers who lived in Paris. The younger one, Amy noticed with disquiet, was staring frankly at her lap. Of course, it was the computer. Even businessmen were curious at a laptop scarcely larger than a woman's compact.

She leaned toward Paul. "Did you know that astrology was unknown

in Europe for most of the Middle Ages? It was kept alive in the Arab world, and was reintroduced to Christendom only after Arabic treatises began to be translated in the twelfth century."

"Those aren't Arabs," said Paul.

"I know that," she replied, nettled. "I was just thinking that it was the Arabs who discovered zero, or rather invented it, I guess. The Greeks never conceived the idea, and Europeans were still using Roman numerals until around 1200. Zero makes a lot of things possible," she noted, patting her computer.

Both men were looking at them with faint quizzical smiles. They recognized Paul as French, and were doubtless wondering to hear him speaking a tourist's language.

"An aetheric vehicle carried one passenger only?" asked Paul as the Metro began to ease forward.

"Well, of course: it wasn't some heavenly shuttle. Think of it as a specially designed carton that contains a single egg." Paul had grown up in Washington, where his father was a consular official, while Amy had lived all her life in Cambridge. They had met while working summer jobs in Manhattan, and had clutched each other in mock horror at the subway's jouncing ride. The smooth glide of the Metro sometimes seemed an injunction to keep their hands to themselves.

"Wasn't it the Romantics who wrote about people crossing the skies in some otherworldly vehicle?" Paul mused. "They always called it a 'car,' and I assumed that it was based on the early railroad locomotives. Actually they sounded like UFOs."

"Of course they were based on locomotives, the Romantics were crazy about Science. Did their descriptions make them sound mechanical?"

"Don't be silly—do you think they had pistons and stacks on them? They were smooth and shiny, just like your aetheric vehicle."

Amy was trying to remember reports of strange objects in the sky, like the chariot in *Ezekiel,* or the fiery wheels seen over medieval Nuremberg. Did the Neoplatonists ever mention them? She tapped a note into the keyboard.

Paul watched her type. "Is there a book in this?" he asked.

"A little part of one, maybe." Amy tried to remember where she had seen medieval reports of flying objects. Probably in some popular book, which she would never be able to check.

"I meant a novel or story," said Paul. Amy had once won an undergraduate short story prize, and Paul was always encouraging her to write more. He seemed to like the idea of being involved with a novelist.

"About Ficino?" Amy laughed. "He just sat and wrote. If I had to write a story about a Neoplatonist, it would be someone interesting, Tommaso Campanella engaging in sorcery with the Pope, or Pico della Mirandola playing intellectual Icarus and nearly getting burned."

"Yes?" he encouraged.

"Sorry, that's another universe," she told him. "One in which Amy Bunker became a historical novelist."

Paul was not able to reply, for they had reached their station, and slowed to a stop with an uncharacteristic faint screech. The train doors opened on a long platform, like a quay on the Styx, and commuters streamed through the low echoing passageways to stairwells that promised egress to the XVIIIth arrondissement. Amy recalled that opponents of the *Chemin de Fer Metropolitain* had called it the *Nécropolitain* and tried to shout this into Paul's ear, but the crowd's murmur and shuffle overrode her. She shifted the strap of her computer case to her far shoulder so it crossed her chest like a bandolier, and put her hand over the machine.

The escalator ascended toward spilling sunlight and a faint drumming, which broke over them as they reached street level. Outside the station, a group of African men were pounding with sticks and palms on drums slung horizontally at their waists. A young woman, dressed in a long red skirt that snapped at her heels as she danced, spun a long veil through the air in a spiraling ribbon like a medieval whirligig.

"Oh, look," cried Amy. Several people pressed against her as the crowd slowed to take in the performance, and Paul took her elbow. She could not see whether there was a collection plate in front of the troupe, or whether they were playing for sheer pleasure.

"Watch your purse," said Paul, forgetting for the moment that Amy carried only a fanny-pak on her hip. She shifted the computer case to cover it as she watched the twirling dancer. One of the streets behind her led to that part of Montmartre that contained the city's art colony in the last century, while the other led into the district that housed most of the city's immigrant workers. Down which *rue* had this company come?

"Looks like she's giving her *furores* a workout," Amy remarked.

"Her what?"

"Her *furores,*" she replied impatiently. She hoped that Paul had failed to hear her over the noise.

"What's that?" He was trying to edge them past the small crowd of spectators, which had begun to obstruct sidewalk passage.

"Oh, Paul. The four *furores* were elaborations by Ficino on Plato's idea of divine ecstasy, and they had all sorts of influence on Renaissance thought. The soul is stimulated by the poetic, religious, prophetic, and erotic *furores,* and so ascends through the four degrees of the universe to a reunification with God. Have you never heard of this?"

"They knew better by the Enlightenment," he said, rather grimly.

Amy shook her head; it was a familiar argument. "How can you read your Chateaubriand if you're repelled by Rabelais? You're like some cul-

tivated aristocrat who never wonders about what his grandfather did to get rich."

"All right, so educate me." He turned to point at the dancing woman. "I suppose that is an example of the erotic fury in action?"

"Oh, no." Amy took a last look, then hastened after Paul as he made for an opening in the crowd. "That's the poetic, which for Ficino included the musical. It was the lowest of the four, but—"

She paused as they crossed the street. Glancing to either side to confirm that no cab was about to round a corner and hit her—"Remember Roland Barthes," she and Paul would admonish each other—Amy caught sight, through a sudden parting of buildings, of the Eiffel Tower, three miles to the southwest. From the high ground of Montmartre the tapering metal fretwork was more than half visible, its upper reaches catching direct sunlight. Soaring like a tipped suspension bridge into the sky, it made the rest of the city seem its embankment.

Paul followed her gaze. "Visible almost everywhere, isn't it? No wonder they hated it when it went up." For of course the Eiffel Tower was scarcely older than the Metro, for all that it seemed as familiar as the Cathedral de Notre Dame.

She pointed. "What do you think a medieval observer would make of that?" she asked.

"Babel," said Paul immediately. "Heading for heaven, and still under construction."

"I don't think so." They were heading up Rue de Clichy, and Amy turned for a last look. "It seems more like a spire."

"What's the difference?"

"Spires point, they don't reach. Even the very tall ones, like Salisbury's, are pious, not vaunting." Then she had it. The recollection broke over her like sunlight piercing a cloud, and a smile spilled from her face so broadly that Paul noticed and asked what it was.

Gervase of Tilbury, wasn't it?, who chronicled the tale: an impeccable scholarly source. The anchor of a great aerial ship had caught in the church steeple at Bristol (if she remembered right), around 1200. But the first reports were of great dirigibles over the American midwest in the nineteenth century, their trailing anchors catching on buildings and things. *That* she had read—it came back to her now—in some paperback she had taken to summer camp because it had looked to her parents like a science book and not a trashy novel. *Stranger than Science,* or something by Charles Fort.

"Tell me," Paul persisted.

But she would not. The airships that appeared in naïve skies—not perfect aetheric vehicles, but great corporeal gasbags trailing bits and tendrils like jellyfish—drifted across the heavens of her mind's eye, making contact, if only by a strand, with the great disk of the earth. The image

touched something within her, like three planes slicing through space to intersect at a single point, and she ran her hand along the building's rough stone and grinned.

The torments of the Inquisitors had not changed him; the decades rotting in prison had not changed him; the death sentence—which he had escaped by feigning madness: abjuring his reason as deliberately as the Protestant Faustus had done his soul—had not finally changed him: did the princes of the church think to move him by the dazzling light of the pontifical presence? Fra Tommaso did not know; he limped along the chill colonnade, unhurried by the guardsmen to either side, with as upright a carriage as his ill-used joints permitted. The stone walls, dank with the condensation of much human breath, renewed the deep ache his bones had acquired in the damp cells of Neapolitan donjons.

The pure tone of a young monk singing antiphon for Compline echoed from an unseen chapel, Tommaso's first indication of what the hour was. Prisoners were brought to torture at such times of night, or moved (Tommaso had been moved more than fifty times during his years of confinement, usually for reasons he could not imagine), or summoned to interview, that they might come disoriented and fearful. But the instruments of torment would not be laid out at Castel Gandolfo, certainly not while His Holiness was in residence. Whatever the purpose of this wolf's-hour audience (the guardsmen, though impatient, had not prodded him when his steps faltered, which meant that his fate was uncertain to them as well), he was not brought in chains, either *de corporis* or *de spiritus*; which meant someone sought what he knew.

The flagstones gave way to marble, then parquet. Two members of the Papal Guard, more finely dressed than those who provided his escort, flanked a great oak door. Watching it be drawn noiselessly open, Fra Tommaso felt his heart quicken, a bird that started only at the nearest prey. He had not, until this moment, actually believed that it was the Holy Father who had summoned him: rather one of his aides, a fellow scholar (perhaps) wishing to question him outside the walls of His Holy Office. Candles flickered beyond, twin halos of light framing, one gradually perceived, a bent head at a desk. Squaring his uneven shoulders, Fra Tommaso started forward.

Urban Octavus, Vicar of Christ, Bishop of Rome, Primate of Italy, Successor of the Prince of the Apostles, and servant of the servants of God, was a small-boned man with patrician features, a neat beard that complemented his cropped skull, and the calm gaze of a snapping turtle, which knows you will come in time within reach. Rising to offer his ring, he was dressed in simple white, as though the great accoutrements of his office had retired at Nones like country priests. Face unlined by physical

hardship, he was, Tommaso knew, his own age. Crossing the large room as steadily as he could, Tommaso glanced to either side—a motionless act learned after years of being escorted past cells—and noted with surprise that there was no secretary present.

"Giovanni Domenico Campanella," said the pontiff in a rustling voice, as though reading it off a page. Tommaso started to hear his baptismal name, unused since his last trial, and wondered at the pontiff's meaning. Was he denying the friar's fellowship in the Dominicans, speaking to him as a man simply, or hinting at further proceedings? The end derives from the beginning, thought Tommaso, who had always known the end near.

"Your Holiness," he murmured, inclining to kiss the ring. It was no more gaudy than a cardinal's ring, he noticed.

"You have traveled long," said the primate. Meaning, Tommaso knew, past the frontiers of the Faith, and (perhaps) back. "Sit," he said, indicating a straight-backed chair.

"Thank you," Tommaso replied, settling carefully into it. He had not sat on aught but stool or floor in two years, and had to will his body to rest against its polished back.

His Holiness was glancing at papers before him. "Member of the Order of Friars Preachers, anti-Spanish conspirator, accused sodomite . . . confessed heretic."

"My errors are freely renounced, Your Holiness, and the vile charge of sodomy unproven." Tommaso had received no invitation to speak, but would not stand incriminated by his own silence. "As for my dislike of Hispanic rule, my writings—" he nodded toward the desk—"have been too widely reported for me to deny, even should I desire to."

He did not add what was most to the point: that Urban was an enemy of Spain as well. This fact, he suddenly knew, had brought him here: not his colleagues' charges of heresy, nor his friendship with Galileo, but the secular enemy that he and this aristocrat—extravagant nepotist, builder of sumptuous palaces while poverty raged like brushfire—uncomfortably shared.

The pontiff seemed not to have heard. "And," he continued, turning over a sheet and setting it to one side, "astrologer and magician."

Tommaso held himself still. Urban, like a child infatuated by a new toy, had in recent years cultivated the habit of having horoscopes cast of his Roman cardinals and then publicly predicting the dates of their death. As Tommaso might have forewarned, this vindictive pastime had drawn the inevitable response from not only Urban's domestic opponents but also his foreign enemies: astrologers had been lately foreseeing the pontiff's own death in the stars.

But *astrologicus* and *magus* were held different in kind, not degree: and the protections accorded the former would not extend to the latter should other shifts fail. Tommaso had never been called necromancer—

can one work magic from a bagnio?—but his late freedom could open him to any number of charges. Prudence urged he watch to see how the Holy Father would play this card; but prudence was not his way.

"The art of opening oneself to benign astrological influences while blocking maleficious ones is no more magic than is the craft of erecting roofs to block rain. Thirty-five years have I said so; and no tribunal, upright or corrupt, has judged otherwise. You have read my letters to you, or your secretaries have, and know well I am no heretic."

"I have read your *Quod Reminiscentur,*" said the pontiff calmly, "and find in its eloquent expressions of remorse for past sins few doctrinal particulars. The records of your long and unhappy dealings with the Holy Office, the Holy See, the Spanish authorities, and with your own order—" he gestured to a pile of ribbon-tied files to one side of his desk—"go back decades, and are in places incomplete. Charges of commerce with spirits remained unproven. But—" the reptile eyes swung to rest their lidless gaze upon him—"no one who believes that the sun is slowly approaching earth, which shall be consumed in its beneficient embrace, will be insensible to the attractions of solarian spirits."

Fra Tommaso replied stoutly: "Both Thomas Aquinas and Albertus Magnus acknowledge that while man's free will is not of course subject to the stars, celestial influences can play upon his humors. To note this fact of nature is not to recognize the planetary forces as *intelligentsia separata* (a very different issue), let alone to enter into dealings with them."

"Artfully said," replied the pontiff, a bit dryly. "Listen now, friar, and as you love your own life, let your reason keep grip on the leash of your incautious nature.

"I bring you before me alone, away from Rome, your audience unobserved by bishop or spy." Tommaso raised his head slightly, as though listening for overtones in Urban's voice inaudible to common ears. "You have been one year out of Castel Nuovo, and though you managed to get yourself rearrested within a month—" a look of disgust crossed the Pope's face—"you enjoy the limited freedom of dwelling *in loco carceris* at the Palace of the Holy Office. You surely enjoy liberty enough to hear the common gossip of the court, the debased news of pontifical affairs that monks repeat like old women." There was a momentary silence. "Answer, briefly."

Tommaso spoke to the point. "They say that the Spaniards see death in the stars, and do not scruple to aver so."

Slowly the Pope nodded. "Its reach extends even to you. Very well, then. Do the gleeful Aragonians see aright?"

"No sign from the heavens is decisive, or its import certain: repeated visitations of the Comet have taught us that. But major astronomical events necessarily cast their powerful influences on corresponding figures in the world below."

The pontiff had lifted his pen. "And these events?"

"You must know them as well as I, Your Holiness. The lunar eclipse in January, and the solar one following in December, with a second solar eclipse in 1630. Those two years are periods of great danger for your person, and justify the Spaniards' open preparations for the next conclave."

Urban had not troubled to jot the dates down. "And these occurrences, being natural phenomena, can be resisted, should one only know how. Without petitioning *animae celestes*—without entering into commerce with any spiritual force—one can raise a roof, as you put it, against these influences."

And then it was that Fra Tommaso understood. After years of importuning letters, the intercession of supporters, treatises and apologias written whenever he was allowed paper, his chance for deliverance had come. Not out of love of justice—the manicured pontiff could not possibly care whether Tommaso rotted in prison until he died—but because of what he, Fra Tommaso, knew: learned with difficulty and despite the hindrances of the Church, and carried with him, a tome none could confiscate, on the library shelves of his memory, undamaged despite the decades of torture and abuse. Like the *vade mecum* that will prove someday invaluable if you only keep it close, his learning had proven his salvation.

"Holy Father," said Tommaso steadily, "the baleful influence of these great conjunctions can be deflected with God's approbation and the proper preparations. Let me help you evade these fearful blows."

The pontiff stared at him balefully, as if the friar had taken a liberty rather than sparing Urban the necessity of commanding his assistance. "Thou treadest unsure ground, monk, and care not for thy footing. Thy latest trials ended well for thee, but thou remainest *de vehementi haeresis suspicione*—the strong suspicion of heresy," he added, as if the Calabrian friar did not know Latin.

Urban took a sheet of heavy paper from a folder, glanced at it and added a few lines, then signed it. Tommaso watched as he folded it up, dripped sealing wax upon the seam, then impressed the papal signet onto the red blob. Like liturgical ritual, he thought; delight with the voluptuous pleasure of the symbols has clouded their original purpose.

The Pope extended the letter without rising. "Give this to Father Niccolo," he said. "You shall have access to books, and the means to acquire supplies. Say nothing, and do not write of astrology."

As Fra Tommaso returned to the outer courtyard, his guards glanced uncertainly at each other like nervous horses: they had not known he was to see the Pope either, and now wondered at his status. Tommaso did not wonder. Clutching the papal commission in his sleeve, the shuffling friar barely glanced at the starry sky—more brilliant than one saw in hazy Rome; more brilliant than he had seen in a quarter century—as he

approached the waiting carriage, hours before dawn in the chill country air. The shells of the firmament were spinning at the same rate they had been when he was first pulled under the earth, late in the last century. But when the sun rose this morning, it would be slightly larger.

Father Niccolo, whose responsibilities included charge of the intolerable Fra Tommaso, looked distinctly off-balance at their interview next morning, and doubtless not simply because the friar had been so impertinent as to request it rather than being summoned at the priest's convenience. The good father had plainly been told of Tommaso's audience, and that a letter had been put into his hands, rather than given to his guards. Watching him, Tommaso observed the administrator's desire to demand the letter, which warred with his uncertainty over the shifting balance of power.

"The Holy Father asked that I give this to you," Tommaso said urbanely, producing the letter and holding it for the startled priest to take. Fool, he thought: Niccolo, in the friar's place, would have held onto the letter as long as he could, to show his strength: but in handing it over at once Tommaso had prevented any suggestion that its eventual surrender was in acquiescence to the father's wish, or indeed any opportunity for Niccolo to show he knew of it.

The father turned pale as he touched the wonderful paper and saw the great seal. Tommaso, unsurprised to see that the bureaucrat had never encountered one before, thought with satisfaction: I can read you like foolscap. Reading carefully, Father Niccolo began to flush red as an oven brick, as though Rolle's *incendium amoris* had taken sportive possession of him.

When he looked up at Tommaso, it was with such naked suspicion that the friar knew the letter's contents that Tommaso composed a bland expression lest he break into a smirk. "His Holiness has arranged that you should have access to the Palace library," said the priest at last, "as well as funds to conduct research on a matter of importance to the Holy See. You shall remain in our care throughout this time."

Tommaso inclined his head and murmured his gratitude to the Holy Father for so honoring him. To do anything less would be blatantly to glory in the father's discomfiture.

He was in the library thirty minutes later, walking the laden shelves unmindful of the monks' stares and wishing for his promised paper. Volumes not seen in thirty years, save in his mind's eye, mingled with new ones—titles not merely in Latin but French and even English—like new faces at a family feast, at once familiar and strange. He appropriated a great table, and was still sitting at it when night came, and he requested a candle and got it. It was near midnight when he found what he sought, in Ficino as he knew by others' hints it would be; not in any volume he

had known (for so he would have remembered), but in the *Commentaries* on St. Paul. There, in the wavering candlelight, Tommaso found the key, a passing reference to *coelicoli daemonesque,* the celestial demons that Ficino had insisted in *De Vita coelitus comparanda* held no place in his natural astrology. So the ancient *Magi* who set up graven images in their temples were merely erecting talismans for their magical operations, which the ignorant masses superstitiously worshipped! Tommaso curled his lip: the sages of Greece and Egypt were no likelier to suffer their flock to fall into outrageous error than Urban was. Ficino's preposterous tableau was merely an apology for his fascination with celestial or planetary demons, which could not, on pain of heresy, be the objects of the magic that Ficino insisted was directed merely toward impersonal planetary forces.

Lighting his way with the disclosures of the *Commentaries,* Tommaso revisited the narrow corridors of the *De Vita coelitus comparanda* in his memory, and found crannies and recessed shelves previously unnoticed. I know this notion's spoor, he thought, exultant. Elaborating ideas drawn (prudently unacknowledged) from *Asclepius* and *Picatrix,* Ficino had written a veritable love poem to celestial theurgy, disguising it beneath layers of disclaimers, irrelevant citations, and bad logic. Do you think that quoting Aquinas will save you from the inquisitors' snuffling hounds? But perhaps, in the end, it did.

In any event, the protocols were there. Amid bluff assurances that the operations would merely temper saturnine and martial influences while attracting jovial, venereal, mercurial, and solar ones were tables and lists, descriptions of how to inscribe talismans so to attract benign influxes (Ficino never said *numina*), and other good and dangerous things. Did Ficino know what he was about? Almost certainly, Tommaso decided; else he would not take such care to hide it. And did he know its dangers? Very likely so: he understood *Asclepius* well enough to swathe its claws. If one knew that these operations would attract an Intelligence and not just some vaporous force, one could comprehend the perils involved. The inquisitors could finally rend only one's flesh.

Too tired to study further, Tommaso returned the volume, then let his gaze drift along the farther shelves. The row below, he noticed, was filled with books whose authors' names began with *G*: the library had arranged its volumes not according to their subject, but by the name of their author. A sensible system, he realized suddenly, if one's interest was not what was said but who ventured to say it.

A rat scritched faintly behind the shelves, and Tommaso wondered why the librarian had not posted a scullery boy with a stick to watch at nights. Likely the lad was kept away this eve lest he meet with the fearful heretic. Tommaso, who had years' experience hunting rats in his stygian cells, could wait motionless, sandal in hand, for hours until the crea-

tures crept within range. But now he need not trouble, for at the sound of a rat—the thought was like a rush of brandy fumes to his head—he could simply *walk out of the room.*

He picked up his candle and the furtive sounds ceased. Tommaso took the memorandum he had made—he could have easily inscribed it in the ledgers of his memory, but enjoyed the act of putting quill to paper—and tucked it into his sleeve. Pausing at the door, he wondered whether Niccolo would set a spy on him, but heard nothing without. Why bother to watch an old man sitting at a table?

He returned to his room, meeting no one in the unlit passageways. Turning the knob, he looked with amusement at the bolt, which no one would throw as the door shut behind him. Knowing the door unlocked made the cramped cell seem larger, and the long candle (he had earlier been granted only stubs) seemed like wealth.

Kneeling to pray, Fra Tommaso—proud before all save his God—thought for a wry moment that he might do well, considering the source of his deliverance, to offer up not the Lord's Prayer, but one of Ficino's Orphic hymns. The little blasphemy (though he would have to confess it tomorrow) warmed his coursing *spiritus,* like the burst of winy steam when Cook dashed moscato into the skillet.

Amy gently freed her arm from Paul's embrace and slipped out of bed. Rubbing her tingling wrist, she tugged down her T-shirt and stepped quietly out of the bedroom, steering by the red pilot light of the kitchen coffeemaker. The middle room was dominated by a broad balcony, and Amy, suddenly self-conscious about walking bare-bottomed through the open-windowed apartment, turned back to scoop her panties from the floor. A breathy sigh escaped from the next room—not Paul but the untiring Braun, still warming coffee no one would drink.

Sitting in her wicker chair, Amy flipped open the lid of her laptop, which sat quietly recharging like a night-feeding parasite. Her Notes file came up within seconds of her activating the system, and she had to hop away to the main directory, where her journal sat hidden among the command files. *Tax92.Dat* it was called, and the first screen of text presented a forbidding column of numbers.

She jumped to the end and typed *8/13.* "*Paul makes love like an American, though back in France. Is it habituation,* or *his partner?*" She looked at this, then moved the cursor to the right of the first comma and added, "*whatever that means.*"

Actually, Amy thought, if there was anything truly American in his lovemaking it was his tendency to fall asleep afterward. Drain the vesicles in their loins, it seems, and the drop in pressure makes them lose consciousness.

She wrote: "*Many (most?) primitive cultures held vitalist beliefs re se-*

men—expend it and you lose psychic energy, which returns only slowly. Do all men privately believe this?"

She marked this passage and moved it into her Notes file, musing as she worked. It seemed a ridiculous belief, but then it might have something to do with the refractory period, which Amy didn't quite understand. She once assumed it involved exhausted muscles refusing to perform, but then read a physiology textbook (so to gauge the soundness of various anatomical discoveries of the Renaissance) and learned that it had to do with blood filling chambers, arterioles dilating and contracting. "*What does this have to do with age?*" she added. "*Supposedly recovery time is much shorter when they are young, and at seventeen almost instanteous. (It certainly was with Joel Silverstein.)*"

Perhaps that was why lovers lit up cigarettes after sex in French movies: only way the fellow will stay awake. Do men fall asleep after masturbating? She thought, smiling, of asking Paul.

If Paul had an erotic peculiarity (national origin unknown), it was his desire to undress Amy in stages, sometimes leading her from room to room as he did so. The skirt or jeans would come down with voluptuous languor, like a gift being carefully unwrapped, and then the pantyhose (which most men seemed to dislike) would be admired and peeled off, a translucent chrysalis stretched tight by the new form beneath. The effect made Amy feel more naked in her panties than out of them, something of an accomplishment since she didn't wear especially skimpy ones. When he finally slipped his fingertips into the waistband and pulled it slowly down, Amy felt the touch of air on her skin like impinging reality, the universe of oxidation and gradients awakening a dormant seed. It certainly beat pulling your own clothes off.

Amy hadn't gotten up to record erotic musings, and jumped to the top of the Notes, from which vantage she searched on *Arabic*. The first entry was one about the Arabs having created zero, which she had since learned was not true. "*Not an Arab invention, but a Hindu one. The Arabs seem to have introduced it to the West, however.*" She thought for a moment, then remembered the name Paul's friend had told her. "*See: Arabic historian al-Biruni (9th cent).*"

It was nice to have learned something from what was a rather unpleasant dinner. Jean-Claude Messaoud had taught at Georgetown, where Paul had met him, and was now at the Sorbonne, enjoying the cachet (thought Amy uncharitably) of being an Algerian intellectual in Paris. He had treated her questions about the influence of Arabian science on medieval Europe with a patronizing indulgence, once glancing at Paul as though sharing an appreciation of this American's naïveté. Since Messaoud had later made a remark that bracketed Paul with Amy as guileless Westerners in contrast with his own worldliness, Amy thought that Paul's failure to resist his earlier paradigm was well requited.

"He's a snob," she had said on the ride back home. "If I'm American, he gets to be French; if you're French, he gets to be Algerian. He's a smooth third-world misogynist in a tweed jacket."

Paul had stirred uneasily. He was reluctant to speak against a friend, but knew (Amy was sure) that Jean-Claude had been rather arrogant. He had been urbanely ironic about the fact that Albert Camus was currently on the bestseller lists with a posthumous novel about Algeria, in a way that managed to put down Paul for having mentioned it. And though the Islamic fundamentalists in Algiers were threatening to topple Jean-Claude's ideal of a socialist and superior Algeria, he had shared their disdain for the anglophone Rushdie, presumably in order to break with the Western literary establishment.

"Well," Paul said, conciliatory, "I think he felt uneasy sitting in that North African restaurant, with all those workers who come here only to be exploited, and there we were with our computers and fellowships."

"And he was carrying a lunchpail? Come off it, Paul." She pulled her computer closer under her arm. In her anger she refused to open it and type in the datum the man had given her. Not, she thought, when he hands it over like a tip.

Five hours later, she had no such compunction. After reading for days how the Italian Renaissance took its inspiration from recovered Roman writings, it would be interesting to learn how much of this treasure had been preserved by Arab scholars.

She jumped back to her journal. *"I think I will write about the spiritus—not the theologians', but the anatomists'. When did it devolve into cerebrospinal fluid? With the advent of dissections?*

"When did physicians distinguish between the nervous system and the circulation of the blood? Between the influx and discharge of nervous impulses, and the steady ricorso of the heart?"

Over breakfast Paul showed her a passage from *Bouvard et Pécuchet,* in the chapter on spiritualism: "*Tous les corps animés reçoivent et communiquent l'influence des astres. Proprieté analogue à la vertu de l'aimant.*"

"Animate bodies being subject to astral influences is nothing new," said Amy, chewing, "but what's this about magnetism?"

Paul flipped to the back of his edition and showed Amy references to eighteenth and nineteenth century works on the subject. Fingertips gritty with toast, she waved it away.

"And what did Neoplatonists know about magnetism? I don't recall anything."

"Didn't Lucretius mention it? It must have been known to the Renaissance; their navigators certainly had compasses." Paul spread jam on his own slice. Like Amy, he found he did not like the sweet butter of France

but was embarrassed to admit it, so made a point of always bringing home fresh *confitures*. They already felt like furtive Americans for having toast instead of *brioches*.

"Perhaps I should call the National Magnetism Board and ask. They probably have a pamphlet for school tours."

"The *what?*" demanded Paul, sounding very American.

"I'm sure there is one," said Amy innocently. "Le Conseil National du Magnetisme, established by Napoleon to set standards and regulate manufacturing. It's housed in some great Third Republic edifice, shaped like a magneto and constantly humming. Native Parisians hear nothing in that sound range."

"I think the Nazis dismantled it to make artillery," said Paul. "Anyway, Michel Tournier says there are no native Parisians, that the city is a huge pump, sucking up and spewing out provincials."

"Another good nineteenth-century image. Who is Michel Tournier?"

"The city actually *is* a big pump, did you know that? Paris has an underground pneumatic system, unique in the world, that pipes forced air to households. It was built back in the 1880s, and was originally intended to run clocks and elevators. But the system still exists: compressed air is a utility, and if you live along the line you can get it through a tap like gas or water."

"You're kidding." Amy stared. "The *pneuma!*" She laughed. "Where on earth did you learn that?"

"From Jean-Claude, actually. While you were in the ladies' room. One of his friends works in street construction, and told him how they blew away loose asphalt with a hose from underground."

"Ah." Amy would rather not have heard Jean-Claude mentioned. "Did he say that the Arabs devised such a system hundreds of years ago?"

"No, no. Quit picking on him. And never mind about Tournier," he added, adopting his Jeeves voice. "He is fundamentally unsound."

They rode down the creaking elevator—"The sensation of the 1862 Swabian Exposition," Paul remarked—and were out in the morning sunshine, which had not yet warmed the sodden air to oppressiveness. The apartment building had a courtyard, transected by two low walkways that opened on parallel streets, so that those who entered through each walkway thought of the other as the "back" one. The apartment that Paul and Amy were sub-letting looked onto the street, so Amy craned her neck each time she stepped into the courtyard to gaze up at the windows of those tenants who lived facing away from her, whom she encountered only in the building's ducts or cavity.

"Does compressed air go everywhere?" she asked suddenly. "Or only through the business districts?"

"Evidently there are a thousand kilometers of piping under the city, and three stations to service them. There is also a steam system to pro-

vide central heating to subscribers, but that wasn't built until after World War I."

Amy wasn't interested in steam pipes. "Was the forced air system ever used to deliver letters?" she asked.

"That's an interesting question. I know they used to do so in big Paris department stores; my father once told me about them. Copper cylinders like artillery shells, running between floors with letters inside. Office buildings too, I think. Would you like me to check?"

"Yes, please." They were passing through the low vaulted walkway, still cool in its dim interior. The entrance was blocked by a large wooden gate with a door cut in one side, which Paul fumbled with his keys to open. The blast of light and sodden air as they stepped through to the street would mark the day's beginning, entry into the world of contingency and consequence. On good days Amy relished the second of waiting for the widening shaft of light and the wave of street sounds; on bad days she dreaded it. She had experienced few bad days this summer.

They stepped into the morning rush of the Rue Saint-Dominguez, and Amy looked down its length, wondering if pneumatic pipes ran beneath the buried cobbles. The nineteenth century, that age of progress and certainty, underlay Paris at every street, the apotheosis of late medievalism's mechanical vision of the physical universe. How did a failed theory of the human sensorium become the design principle for a capital city's infrastructure?

"I'm being silly," she said, too low for Paul to hear. But she looked speculatively at the street scene, as though it were a passage that would yield up further meaning once translated carefully.

Rome was a changed city, coarser and more brutal than he remembered it. Its stinks were greater, and Tommaso had lived amid stinks for a quarter century. The fashions of the wealthy were decadent, while the common folk had lost respect for homespun decency and dressed like vagabonds. There were also a lot of foreigners in the streets, more surely than Tommaso remembered.

Few took note of him as he negotiated the market streets, one monk in a city of many. Two guardsmen accompanied him, but Tommaso made them walk two steps behind, so that he did not look as though he were under arrest and frighten tradesmen out of speaking with him. He carried a parcel under one arm, the harvest of an afternoon's bargaining beneath the placid gaze of the incurious guards.

"Pepito," he called to a boy, "where can I find a lumberyard?" The child, perhaps ten (although it was hard to tell; city children were always small for their age), gaped at the older man. Tommaso tucked his walking stick under the parcel and produced a copper. "The establishment where they

sell wood," he explained. The child pointed to the west, then grabbed the coin as Tommaso began to proffer it and ran.

Tommaso glanced at his guards, who had watched this without comment, and shrugged. He bore west through the winding streets (the City of the Sun would have straight avenues laid out on a grid), and tried to catch the scent of sawn wood in the fetid air. Perhaps Rome no longer built with new materials, but simply prised loose stones from the ruins of its ancient glory. He was standing uncertainly at a crossroads when he caught sight of the young boy waving vigorously from farther up the street.

Tommaso hurried forward, a prayer of thanks under his breath. When he caught sight of the sign hanging above the child's head, however, he stopped so suddenly that one of the soldiers almost crashed into him. Swinging faintly in the breeze, the sign board bore a painting of a lyre. The boy, seeing the priest's expression, vanished into the crowd.

Enticed by the sweet smell of cedar, Tommaso stepped into the dark interior. The scent of glue and oils hung in the still air, and a bit of sawdust crunched under his sandal. "Good morning," Tommaso called out.

Someone was moving in the back. "Yes?" called a voice. Brushing at his apron, a frail man stepped out of the shadows. As he came forward, a bar of light slanting from the skylight fell across his face.

"Ludovico!" Tommaso exclaimed. "Heavens preserve me. I would have thought you dead!"

The man flinched. "Your pardon, Fra," he said, an odd expression coming over his seamed face, "but Ludovico Benedetti was my father, now gone for twenty years. I am his son, Bartolomeo."

"His son?" Tommaso leaned forward to peer closer. "The likeness is astonishing. Poor Ludovico, may his soul rest in peace. And you continue your good father's trade?"

"I am an honest lute maker," the man said, a quaver in his voice. "Theobros and even chitonnes, as well-made as you could find in Bologna."

Instruments hung on the walls in various states of assembly, along with saws, wood frames, coiled lengths of gut. "I am Fra Tommaso, an old friend of your father's. He was of great service to me in various scientific inquiries."

The artisan seemed to retreat into his collar, like a tortoise before a predator. "I know nothing of those," he said. "I make instruments, nothing more."

Tommaso was surprised. "Did Ludovico never teach you of Pythagorean proportions, what the harmonic relations reveal about the cosmos? His zeal for exploring such matters was unflagging."

"Reverend Father, I have never pursued any worldly matter but the making of lutes." The man seemed miserable, almost terrified. "What my

father did has nothing to do with me or my family, who do not deserve his shadow to fall across their lives."

Tommaso stared at him in puzzlement, then his expression changed. "Good Lord," he said. "Don't tell me that Ludovico suffered for his association with me."

The artisan would not meet his gaze. "My father was a good man; I was thirteen when he died. They seized his papers, detained him and questioned him, but he was never formally accused. Our business suffered for years afterward; I couldn't marry until I was thirty-three."

Tommaso was looking, appalled, at the younger man. "I remember you," he said suddenly. "You swept shop, and sometimes held the guide when your father marked for cutting. He once stretched a string across his workbench, then showed you how the harmonious divisions of the diapason followed classical ratios. I remember him explaining how *musica practica* was, without an understanding of *musica theorica,* merely the trilling of birds."

Bartolomeo shook his head. "I remember nothing. My apprenticeship was unending toil, usually with my father's assistants. If he wanted to teach me about the universe, he never got the chance."

One of the guards looked in the door, glanced incuriously around the gloom, then withdrew. Bartolomeo gaped, his Adam's apple bobbing like a float when the fish takes the bait.

Tommaso took pity on the terrified man. "I am sorry for your father, and sorry you do not remember him better," he said gently. "Give me the location of a good lumberyard, and we will leave you."

He stepped out of the shop a moment later with a scrap of paper in his hand. "Poor Ludovico," he said aloud, a pang in his chest. "A pious man who loved God's works. Did they harry every Roman I spoke to?"

Further expeditions confirmed the unavailability of various needful substances in the Eternal City, and Tommaso wrote letters (reviewed unsmiling by Father Niccolo) to procure them from Venice, port city to everywhere. He read deeply in the library of the Holy Office, then sought permission to visit other libraries in the Vatican's ant nest of buildings and palaces. Refused, he demanded that the necessary books be brought to him, and a shelf was in time designated for the books (scandalous, the librarian seemed certain) that were delivered for Fra Tommaso's study. *Libris diaboli,* he overheard them called. He observed (though only to himself) that if these books were indeed heretical, the Holy Office would doubtless possess its own copies.

Astronomical treatises, to verify what he had heard about coming eclipses. Diacetto, Ficino's second-rate disciple, whose *De Pulchro* might (Tommaso thought) lack the master's cunning in obscuring the implications of his meaning. Della Porta, who seemed to take from Telesio (Tommaso's own master) the doctrine of a sensate and living universe and who

knew—and was rash enough to say—that demons, while their fallen natures had cost them God's grace, "did not because of that lose their natural ability to know the virtues of the heavens, metals, stones, plants, and animals." Tommaso was less interested in this truth (which he knew well) than in Della Porta's doctrine of the *signaturae* by which the affinities and correspondences between the diverse elements of nature could be known. Trithemius, who seemed to share Finico's belief in planetary angels, and who had probably called upon them for magical operations of his own. His *Steganographia* had been defended as a simple treatise on cryptography, the angels and spirits mentioned in it merely illustrations of methods of encryption; but Tommaso knew better. The first two books were indeed that, but the third dealt not with ciphers, but rather described a method of sending an instantaneous message through the medium of an angel. Like many writers of his time, Trithemius believed that thoughts could be transmitted over distances through the agency of a wind spirit.

Tommaso read and annotated, not on the sheets the librarian provided but in the laboratory notes of his mind, which no inquisitor could rifle. Most of these authors, he noticed, seemed to want to *do* things with their celestial knowledge: send a letter across enemy lines, predict the deaths of princes, restore vigor to one's dissipated humors like an old man easing his piles. They sought to comprehend the machinery of the universe only in order to determine what cogs could serve as their tool, as though creation were an ancient viaduct still good to water their hogs. *You think it shall run forever,* he thought grimly, *but Our Father created the cosmos for a purpose; and, that purpose fulfilled, shall toss it like an old scroll into the fire.*

Tommaso also noticed how Giambattista Della Porta, who had suffered his own troubles with the Inquisition yet grew rich and famous during the decades that Tommaso had languished belowground, shared Ficino's disdain for the vulgar masses, from whom the secrets of nature must stay hidden. "Secrets of such great price should not be profaned by the vilest sort of people that might happen upon them," wrote Della Porta, seeking favor from Rudolf II. Thus the desire for gain corrupts, thought Tommaso, and those who probe the secrets of nature for material advantages are quick to deny them to others.

And so he moved beyond those writers Ficino influenced to those earlier ones who influenced Ficino: men of a ruder but less callous age, who knew little of the classical texts that were recovered and translated only in the last century yet burned with a cleaner flame than today's corrupt and guttering minds. Tommaso read their crabbed, scholastic Latin with the wonder of a man dropping a flaming brand into a well. Peter of Abano, cited repeatedly in *De Vita coelitus comparanda,* recklessly likened magic to the Holy Eucharist, a metaphor (he seemed to mean the

miracle of Transubstantiation) likely to be more easily defended to scholarly readers than to the Inquisition. He proved an apparent source for Ficino's fascination with talismans. Roger Bacon the Englishman also wrote of talismans and planets, and Tommaso read carefully through his treatises, wondering whether Bacon's reverence for the exploded *Secretum Secretorum* meant that he would have to read through that enormous fraud as well.

And why should he not? Even Ficino's contemporaries had recognized the *Secretum* as pseudo-Aristoteliana, and Tommaso well knew *Picatrix* (with its cool claim that both Aristotle and Plato had written books on magic) was largely nonsense as well. But it was plainly nonsense that Ficino had used in elaborating his talismanic theories, so Tommaso had to consult it. He had better look at the *Secretum* as well, all ten volumes of it.

As the weeks of Roman summer passed into harvest time, Tommaso ranged to and fro among the philosophical works surrounding the late fifteenth century, like a peasant scything the wheat on either side of a stone in his field. Ficino had read deeply, in the leisure of his Florentine Academy and noble patron, and bits of his astrological theories could be gleaned in many books, even (and especially) in the work of the ancients, Proclus and Iamblichus, whose experiments in musical theurgy seemed to Campanella more valuable than all the later ramblings about Hermetic talismans and the necessity of concealing such truths from the *vulgus*. Still, these talismans should not be dismissed, for a man who sets seven ill-designed fish traps and one good one will still have his dinner. And Ficino escaped condemnation; it was best, thought Tommaso, to dress his own preparations in as much Ficinian garnish as he could.

As he walked back to the Palace in the late afternoon light, Tommaso heard a sniveling sound coming from within a narrow alley.

Peering inside, he saw a small boy, his face smeared with snot and tears, struggling to button his trousers.

"What is troubling you, my son? Pants easier opened than closed?" Tommaso was amused.

The boy looked up, lower lip trembling. He took a few steps backward, as though embarrassed to be seen by the priest, then turned to run. Glancing back over his shoulder, however, he stumbled over his drooping cuffs, and the ill-cut trousers slid down from his little rump. Alarmed and vulnerable, the boy bent to pull them up, but with a foot planted on his cuff, his efforts only threw him off balance. His expression miserable, he looked toward Tommaso in bewildered entreaty.

Tommaso's face darkened. He raised his stick and pointed it like a sword. "Tell your masters they are vile," he thundered. He turned on his heel and strode away, swinging the stick to scatter a pile of rubbish with a crash.

He was shaking with rage by the time he reached the Palace. The

monk who sat within the door looked up in surprise—hadn't expected to see him return?—as Tommaso swept past, and a young acolyte leapt out of his way. Tommaso considered bursting in upon Father Niccolo, but knew that the smooth functionary would disclaim any knowledge of the trap. Instead he climbed the stairs—one hand gripping the polished banister as his stick rapped angrily on the marble steps—and reached the library trembling with exhaustion.

Sitting in the peacefulness of its confines, Tommaso at length collected himself, and set about taking stock of his situation. So: He has enemies, not simply the passive grudging of those who resent his freedom. They credit old calumnies, so are fools. They do not scruple to debauch a child.

Resolve slowly hardened, like mortar. They dare not strike at the Pope, so aim blows where they imagine weakness. Guessing wrong, they lose the advantage of surprise, which they will not recover. Tomasso, a defended fastness, shall not fall.

With an effort of will he imposed tranquility upon his heart, like poured oil stilling churned water. A book lay at his side, and he took it up. The library was an arsenal, and Tommaso bent to the task of arming himself.

The university library was a sober, vaulted structure, so severe in its gothic rectitude that Amy could feel a silent admonition that those who cross its threshold banish all worldly thoughts and restrict themselves to pursuits as austere and edifying as its upright form. Kissing Paul goodbye in its high-ceilinged vestibule, Amy imagined the touch of lips as her last human contact for the rest of a penitential day, amour yielding the field to abstraction. As Paul headed for the reading room with its plush armchairs, Amy consulted the card catalogue, then took an elevator upward into the stacks.

She realized that there was no point in delving further into the Renaissance notions of the *spiritus* until she understood what the Neoplatonists—not the Renaissance Neoplatonists: the original pagan ones—meant by the concept of the pneuma. Collecting studies of Chrysippus, Plotinus, Porphyre, and Galen—many, unhappily, in Latin (she grabbed a copy of Verbeke's *L'Evolution de la doctrine du Pneuma du Stoicisme à S. Augustin* with relief)—Amy found a study carrel and spread her books before her, with her desktop opened at their head like an escritoire.

Working her way through chapters, she traced patiently how the concept of the pneuma, though as discrete and fixed as a continent, had drifted with the passage of centuries. First propounded as a purely medical phenomenon—Zeno spoke of it, Verbeke reports, "avec un signification essentiellement matérielle"—the pneuma evolved in time into an aspect of perception (producing the *phantasms* that were the only form of

data perceptible to the soul), and eventually into the wholly immaterial vapor of Saint Paul. While the Stoics argued down the centuries with the Hippocratic physicians, the "école pneumatique" (which Verbeke also refers to engagingly as "les pneumatistes"), and others as to whether the seat of the pneuma is the heart or the brain, none of the ancient philosophers ever questioned its material nature.

A substance, she thought, like phlogiston. Most of these writers did not regard the function of the pneuma as possessing a moral dimension, although it was Epictetus (rather than a Christian) who compared it to a reflecting body of water, which must be kept pure and tranquil to hold a proper image. So the care of one's pneuma became a matter of spiritual hygiene, for dissipation would cloud or pit its surface.

The pneumatists located the *hegemonikon*—the faculty that synthesized raw perceptions into phantasms and displayed them to the soul—in the heart, and believed that the pneuma circulated through the arteries. Inhaled from the ambient air, it mixed with effluvia from the blood (*Like the spiritus*, Amy wrote) and throughout the body. Theirs was an especially mechanistic system: the incessant motion of the pneuma produced heat, which must be carried away by exhaled breath. This brought in the lungs, although they seemed not to recognize that the heart functioned as a pump, and never quite grasped the principle of the circulation of the blood.

The Stoics, on the other hand, placed the *hegemonikon* in the brain, and paid little attention to the heart and lungs. Their system emphasized the fiery nature of the pneuma, which they knew was not like earthly fire, so did not produce heat that must be dissipated. They also believed the pneuma to be co-extensive with the celestial heavens, whereas for the pneumatists it was the earthly atmosphere.

So which model was right? Galen, a physician rather than philosopher and thus of a presumably empirical bent, decided to conduct experiments, which Amy found cheering. He took animals and blocked their neck arteries, on the assumption that if the *hegemonikon* was located in the brain, they would die. The animals suffered no evident distress (Amy frowned at this), which led the physician to conclude something about the importance of breathing through the nose: air thus inhaled goes directly to the brain.

No experimental tradition, she typed disgustedly. The philosophers simply developed systems that felt right to them, like psychotherapists.

And what of phantasms? Ficino had never mentioned them, claiming the vibratory dynamics of sound to be superior to the static nature of mere "images." But phantasms lay at the heart of pneumatic perception: it was the purpose of the pneuma to create a phantasmic image for the soul. "The soul," declares Aristotle, "can understand nothing without phantasms."

Amy went back through the Greeks and checked again. Galen makes clear that the *hegemonikon* creates an image for the soul to perceive, while Renaissance writers right up to Ficino agree that visual images imprint themselves powerfully upon the *spiritus*; indeed, the image of a beloved woman could actually infect the *spiritus*, dominating the subject's consciousness and driving out everything else. Amy at last caught Ficino admitting as much: "The lover carves into his soul the model of the beloved. In that way, the soul of the lover becomes the mirror in which the image of the loved one is reflected." So the phantasmic image persisted into the late Renaissance: they simply called it other things.

Something about this bothered Amy, but she couldn't put her finger on it. It was after twelve, and she permitted herself a break from her labors. While checking the card catalogue she had looked up Michel Tournier, and two titles had jumped out at her: *Le Vent Paraclet* and *Les Météores*. Abandoning classics country for the lower levels where literature was kept, Amy located the books and found a comfortable chair out of sight of her cluttered carrel.

After half an hour she was ready to confirm Paul's judgment of the man. *Le Vent Paraclet* was a memoir, scabrous and opinionated, flavored with philosophical asides that seemed faintly crackpot. She found one passage ("The human soul is shaped by myths that are in the air. Even . . . many animals, from insects all the way up to mammals, enter into relationships with one another—and sexual relations in particular—only by means of odor. In other words, their souls are literally *in the air*") interesting enough to enter into her Notes, and a lot of wind imagery, but nothing about the Paraclete. *Les Météores* turned out to be a novel, full of grotesque conceits, including a heretical priest who proposes that the stewardship of Christ must be superseded by one of the Holy Spirit, for whom a Third Testament would be required. Amy enjoyed the rant, and entered bits of it ("*Ruah* is the Hebrew word traditionally translated as wind, breath, emptiness, spirit. . . . The Holy Spirit is wind, tempest, breath, it has a meteorological body") for later checking. How prevalent was the ancient conception of the soul as pressure front?

Eating a quick brioche at a courtyard table, Amy checked her notes (she could not bring the books outside) and tried to make sense of the dispute over the *hegemonikon*. Despite the fact that most of their rival schools disagreed with them (and the Renaissance would side in time with the pneumatistes), the Stoics had been right: consciousness resided in the brain, and had nothing to do with the arteriovascular system. The pneuma did not circulate throughout the body but resided in the brain: or rather, it did not race through the arteries as a pressurized vapor, but traveled through the nerves and in the brain on the currents of what was

indeed a half-physical, half-immaterial phenomenon: the electrochemical impulses that leap from synapse to synapse. Like the *spiritus*, it partakes of both corporeal matter and of the force that fills the universe: the electroweak force of theoretical physics, which manifests most grossly in the movement of electrons and most subtly on the quantum realm where human consciousness may truly reside, the domain of spontaneous creation, attraction between objects, the free will of uncertainty, escape from matter.

"They were right after all, in a way," Amy remarked to her laptop as she closed it down and folded it up. She returned to her carrel and, feeling replete with original sources, looked to her small stack of modern histories and pulled out Couliano's *Eros et Magie à la Renaissance*. Peeking at the table of contents, Amy saw chapters with such titles as "Magie pneumatique," "La vehicule de l'ame et l'experience prenatale," and "Ejaculation et retention de la semence." "This is the stuff," she said, settling in.

It was indeed. Discussing the influence of the pneumatic theory of sexual attraction on Arabic mystic poetry, Couliano notes how an eighth-century poet named Bashshar ibn Burd had been sentenced to death "because he had identified the woman to whom he had dedicated his poem with the Spirit or *ruh*, the intermediary between man and God." So here the *ruah* was a mediating force, not an aspect of the divine. This was interesting, but the next sentence drove it straight out of her mind as Couliano, noting that "only unattainable womanhood can be deified," remarked that Gervase of Tilbury once had a young woman sent to the stake because she had resisted his sexual advances.

Well, that really says something, thought Amy, feeling a little sick. She knew what was bothering her now. Chrysippus believed that the pneumatic sensory system also produced voice and sperm, while Ficino explained that the planet ascendent in the zodiac at the moment of a person's birth will imprint its qualities upon both the soul and sperm. And Ficino wasn't the only one who seemed to confuse *people* with *men*: both his fourteenth-century predecessors (Amy paused to check this) and later figures such as Bruno and Campanella consistently attributed to the soul seminal and vascular qualities specific to males.

And why should she be surprised? The entire concept of the *spiritus*—an inflamed substance racing through blood vessels, pneumatic pressures affecting cognition—is basically a guy thing, the shaky induction of monks who associated tumidity with the life force and had no understanding of that half of humanity which doesn't. Even their detailed mechanism of arousal, with the heavy emphasis on visual stimuli, is the obvious work of men.

In fact—Amy began to set up the Search function in her Notes file—she had read something about just this earlier this year. From a book re-

view of some glossy pornographic novel, about voyeurism and similar male concerns. Here it is:

> "Men seem to carry within themselves a complex and variable template of what is sexually appealing, and their eyes are forever making fine discriminations—some eyes make finer discriminations than others—concerning the real women they see and how closely they approximate the template, which cannot actually be perceived except in keenness of feeling aroused by such approximations, and none of this, template, search, feelings, seems to be any choice of theirs, but to be a fact of their biology." (Wash. *Post*, 2/20/94)

That's the phantasmic mirror, all right. The ancient world's window for the soul proves shaped like a keyhole, just as the myths that supposedly define Western culture—Actaeon spying Diana in her bath, or the story of Tiresias with its underlying theme of male anxiety over women's multiple orgasms—are the tales men tell each other, boastful or insecure, the ground-pawing snorts of a bull spying maidens on the beach. Men's reality, proffered as reality.

Amy tried to explain her theory of the electrodynamic pneuma to Paul over espresso on the steps outside the library. A wheeled stand stood by the curb, dispensing its wares in Styrofoam cups to students who didn't care to walk two blocks to crowded bistros. We're not really in Paris at all, she thought as she swirled the grainy liquid at the bottom of her cup; this block stands in the same country that NYU does.

She said: "They knew that sensory data traveled from the sense organs to the seat of consciousness, and they knew that it would have to be synthesized—processed—before the mind could perceive it. But they didn't know about nerves, and since the blood travels quickly throughout the body, they took that for the transport mechanism. But the cerebral cortex *does* convert sensations into percepts, no one knows how, and then the mind perceives them, using processes that do not operate by the normal rules of the universe. Remember that physicist who said that the fundamental operations of thought must take place on the quantum level?"

"Roger Penrose," said Paul. With a French accent the name sounded quite beautiful, like that of a medieval poet.

"So the mind is electromagnetism—a force subtler than the Renaissance or even the nineteenth century realized, for quantum electrodynamics embraces all but subatomic interactions, and quantum field theory extends to the nuclear forces and gravity, which were unified at the birth of the universe but then broke apart, a subatomic Fall. And QED is indeed the force that animates the planets, and governs the actions of matter upon matter, just as the pneumatists believed." It also governs the mechanisms of attraction and arousal, and in a manner that does not disregard the existence of women. Like the great designers of the nine-

teenth century, who dispatched messages and illuminated cities with pressurized gases until they learned how to do so with electricity, the pneumatists explained the mysteries of perception and consciousness by the most fleet and evanescent substance they knew. Were they foolish for not supposing that the force that drove lightning and the crackle of fur also ran through the body's finest fibers?

Paul was amused. "But it's *not true,*" he said. "That's the point, finally, isn't it? All of it was wrong."

Amy felt a twinge of impatience. "Not really—or not in their own context. The Victorian scientists who agonized over the fitful evidence that life on earth was millions of years old—they looked at the sun, which they measured in size and apparent mass, and knew that no chemical reaction could cause it to blaze for that long. We laugh at them now for treating Biblical chronologies so respectfully, but they knew the universe of chemical reactions, which had done a fair job of explaining everything: were they fools for not positing some unknown force, which operated like nothing they could imagine and would shift every result by several decimal points?"

Paul adopted a wary expression Amy had no trouble reading: she was being unreasonable, but might possess better ammunition to defend her position than he had to hand. "Your laptop performs logical operations and commits data to memory through an electrical flux," he pointed out. "Does that mean it has a soul?"

"The Stoics wondered about that," she replied briskly. "If the pneuma animates all of nature, why are its various creatures so different? They decided that the pneuma does not penetrate all living things in the same fashion. There were three kinds of pneuma: the inanimate, the vegetative, and the psychic, and only the last informs the higher human faculties. My machine—" she patted it, smiling—"is purely electronic in nature: not even vegetative."

Paul frowned as the espresso machine sputtered and spat a dozen feet away. "*Vajrayana* Buddhism used electrical imagery to describe consciousness and transcendence, but it turned out to hold the same beliefs about channels to the brain and vitalized semen as the other Buddhist schools."

"Vajrayana?"

"Means 'thunderbolt vehicle.'" Paul could never resist a little smirk when he found something she didn't know. "As opposed to *Hinayana*—'lesser vehicle'—Buddhism, and *Mahayana,* the 'greater vehicle' variety. The vehicle was to get you off the cycle of rebirths to *nirvana,* and the thunderbolt was the fast way. *Vajrayana* Buddhism is basically the same as Tantric Buddhism, you know about that?"

Amy remembered something about tantric practices. "Something about sex?" she said dubiously.

Paul nodded. "If the adept did it right, his semen was converted into some magical essence, which would race up to the brain and blossom into the lotus of a thousand petals, allowing him to become one with the World Soul."

Amy hadn't intended to raise the subject, but here it was anyway. Perhaps it is intrinsic to the issue. "What about adepts who have no semen?" she asked.

"Who? *Oh*—I don't know." He hadn't thought to wonder, and now blushed. "It's probably a pretty sexist concept."

"The whole pneumatic belief system works better if considered as an allegory," Amy told him. "This means keeping the men's dicks out of it."

Paul winced, then assumed a wounded expression, as though only a low blow could strike home. Amy sighed inwardly, a puff only she could feel. She was forming a grain of remorse when Paul lifted his chin, and as his lips quirked to shape breath she suddenly guessed what he would say:

"But if the elements in the system all represent synaptic responses, then the sexual act can still create changes in consciousness. At least—" and here he gave a little smile—"if it's done well."

"Oh, Paul." It was just what she had hoped not to hear: a reference to his belief (never expressed but long apparent, resting complacently between them like a secret) that her ability to be multi-orgasmic—a happy faculty she had possessed since high school, and could confidently attribute to practice—was largely due to his own skills. Don't bring this up; it was tolerable when covert, peeping foolishly forth like a testicle from baggy briefs; but to allude unmistakably to it—demand her complicity in the belief, whipped cream atop his sundae—would be insupportable: you don't know where this could go.

"Let's go." She wadded her cup—it bent as though ready to fold, then ruptured with a soft crunch—and stood. Paul was chattering on; having proffered an emissary whose credentials were not being accepted, he was backpedaling to firmer ground, some innocuous comment about endorphins.

Of course sexual response produces changes in the *hegemonikon*: the sensory data is unremarkable, but people find the experience transforming; clearly it affects their experience of reality. Did Paul imagine that this metamorphosis—this reordering of the senses, for which people kill, obsess for years, or ruin their lives—could be finessed by his erotic virtuosity, the transfigurations of eros fine-tuned by technique?

It was a matter of technique, Tommaso had told himself and His Holiness: like the alchemist who combined proper ingredients under specific conditions to obtain a desired salt, he followed a procedure grounded in method, not superstition. Both men were robed in white linen, and no distracting gem nor metal artifact adorned their garments.

The pontiff had asked whether it was permissible still to wear the Holy Cross, and Tommaso had assured him that no godly enterprise would debar one: yet bear one made of wood, on a string of twine. Urban presumably wore it next to his skin, for his raiments were as anonymous as a ghost's.

Torches smoldered on the walls, while candles, specially prepared, flickered on the covered tables before them. The chamber, which had been chosen for its high ceiling, receded into darkness above the level of their heads, where the cypress smoke and vapors from the aromatics steadily rose, a conduit between them and the heavens. Three men, garbed in white though coarser cloth, sat silently with their backs to the wall; neither Tommaso nor the pontiff paid them any heed.

Urban had prayed before they had entered, sinking to his knees before the threshold and supplicating (no doubt) for his own deliverance, as indeed any man might justly do. Tommaso, who had confessed and prayed the day before, felt purified as a cleansed vessel; but recognizing that to admit no need for prayer would invite the sin of pride, he bent his head and offered a silent thanks for his good fortune to date and a plea for success to come. Then he broke the seal on the door (beeswax, a solarian substance), and the two sorcerers entered.

Silence was not required, but Tommaso had urged the necessity of maintaining a receptive mental state, and Urban obligingly stood mute throughout the operation. Kneeling like a mason, Tommaso filled the cracks around the door with a clay that had been excavated from the banks of the Tiber at a propitious hour. "The *spiritus* is a vapor subtler than the common air," he had explained, "and will escape the room through the smallest opening." He finished the task with more beeswax, smoothing away the smallest ridges. Rising with an effort, he turned to the prelate and gestured toward the tables, where the devices and substances they would employ were laid out like the instruments of Eucharist.

All magical exercise consists of directing oneself to the spheres, the stars, the higher worlds or to the devils by means of various kinds of veneration and worship and submissiveness and humiliation, wrote Ibn Khaldun, a hundred years before Ficino. *Magical exercise is thus devotion and adoration directed at beings other than God. . . . Sorcery is unbelief.* And Ficino would not have disputed one word of it, save perhaps for *diaboli* rather than *animae,* up until that last sentence. And even there, thought Tommaso as he prepared the rose vinegar, Cosimo's pet platonist might have acknowledged (in an unwindowed chamber of his soul) that to entreat favour of these celestial creatures was to worship strange gods; his lifelong doctrine of the soul's ascent toward a union with God dissolved like a hide that was tawed in too harsh an agent.

You will not denature *my* faith, thought Tommaso as he poured the

vinegar over laurel branches and then shook them at the four corners of the room. Animae celestes, I neither fear nor petition you. The flux of powers that flows through you originates in God, and you can no more impede it than the rock in the river can deflect the torrents that race past.

Urban, following Tommaso's instructions, was sprinkling the room with aromatic substances from a series of sealed containers: liquids, then powders, leaving his fingertips colored with a dark pigment Tommaso had told him not to wipe clean. When he was finished, they lit a brazier at the room's center and burnt myrtle, rosemary, and cypress, upon which Tommaso finally threw the laurel branches, which hissed and produced an eye-stinging smoke. As the room dimmed, the two men brought forth white silken cloths and draped them over the wall hangings, then they brought forth branches and decorated the room until it looked like a shrine to a forest god.

Two candles were lit, representing the sun and the moon, then five torches for the remaining planets. All other lights were now extinguished, and the chamber was illuminated only by Tommaso's simulacrum of the heavens, intact and proportional as the real heavens (deformed by the imminent eclipse) were not. With a gesture from Tommaso, two of the men raised their instruments, a lyre and a flute, and the third stood. A youth, he began a *recitare* in the half-chant, half-song that Tommaso had coached him in, an Orphic Hymn determined to be Jovial in character. Ficino had placed greater importance on the words of his astrological songs than on the music, but 140 years of cultural *rinascita* had brought the art of music out of the dark ages, and Tommaso had taken care to commission the finest composers to produce melodies of Jovian and Venerean character, which would fill the chamber and allow it to vibrate in harmonic sympathy with the celestial powers of those planets.

The chamber prepared, Tommaso commenced the operation itself. Under his direction, Urban inscribed images upon the smooth surfaces of stones, symbols of the sun, Jove, and Venus. He was bade to contemplate these talismans, to look through them to the face of God beyond. (This last instruction was merely a precaution against the charge of idolatry; by attuning his soul to that of the appropriate planets, the pontiff would facilitate the flow of beneficence to himself. It would work equally well if the image of Venus inspired thoughts of the Pope's mistress.) He drew the images upon paper made from the fibers of special plants, with inks compounded of selected herbs. Together the two men ate from loaves of specially prepared grain, then drank astrologically distilled liquors.

It is not like a mass, Tommaso had assured His Holiness, realizing how the protocols sounded like one; *there is no ceremony.* After sufficient attunement and exposure, the Pope will have replenished his *spiritus* from the heavenly flux, like a cistern that has slowly filled. Then, their task completed, they simply close up shop and leave. Should the musicians'

fees not secure their prudence, Tommaso wanted them to carry no tales of a procedure that seemed a rite.

And so the endeavor proceeded. Tommaso stood to one side as Urban meditated upon a medallion bearing an image of Apollo, and imagined His Holiness' spirit like a ship's sail, now being mended and then carefully trimmed so as to catch the wind from the sun. Urban might already be feeling the vivifying power that Ficino ascribed to the renewed *spiritus*; Tommaso had no practical experience with celestial magic, but was ever mindful of Galen: "The doctor who enjoys his patients' trust heals all the more."

At the end of it, Tommaso—by now feeling oppressed by the close air, and aching in his bones—lifted a corner of the tablecloth and draped it over the remains of their conjurations. "It is finished," he announced in a normal tone. "Thanks be to God." Urban was standing alone, head bowed, and the musicians—looking bewildered by the proceeding, although it had gone exactly as Tommaso had described it to them—stood and bowed, murmuring, before they withdrew. And after that it was merely clean-up: airing a stinking chamber, recovering the clothes (which would be laundered in an appropriate hour), and pocketing the few talismans that would not be discarded with the dregs and trash. For tasks of such sensitivity the See employed a special crew, slaves obtained from the Ottomans who understood no known language.

Writing in his work book that night, Tommaso recalled Ficino's vision of the universe as a machine as intricately ordered as a genealogy, in which "*All the intelligences, be they those of the highest rank and superior to the souls, or be they inferior and part of the souls, are so interconnected that, beginning with God who is their head, they proceed in a long and uninterrupted chain, and all the superior ones shed their rays down on the inferior ones.*" Should one only add Thomas's injunction in his *Opusculum*, that these angels should be revered with *dulia* as the servants of God who convey His celestial gifts, and not worshipped with *latria* as though they were the creators of these gifts, then Ficino's beautiful image—each level meshing with the next like the nested gears of a brass watch—was as doctrinally irreproachable as the celestial orders of angels.

From the sun radiates an endless stream of the celestial material of which the *spiritus* is made: penetrating everything, filling the universe. Urban believed that he performed a series of exercises upon his imagination the better to receive it; Ficino secretly believed in guaranteeing its supply by supplicating the planetary intelligences who control it, even unto worshipping them. Fra Tommaso believes that if he preserves the Pope's life—and there are more procedures to be done; the second, more serious eclipse comes only at year's end—he may win pontifical support for his evangelical missions, which take on increased urgency as the earth slowly approaches the sun. Does he care which theory of the *spiritus* is correct?

Intellectually he cares. The true nature of the celestial spirit—the rela-

tionship of the *spiritus mundi* to the *anima mundi,* and what the Lord could have meant in *Job* when He spoke of "When the morning stars sang together, and all the sons of God shouted for joy" if not that the stars were the physical bodies of angels—these are surely matters of importance. But the Spaniards still occupy Calabria, the Curia seethes with corruption, and the peoples of the New World remain unconverted even in these late days of the world. Tommaso is old, and there is not time for everything.

The sun has passed beneath the earth, but its rays penetrate rock and soil effortlessly, sleeting upward through the floor and into Tommaso's body and spirit. Subtler forces also suffuse the spirit, should one only know how to receive them. The sun has grown so close to earth that even the people of the northern latitudes, like the Egyptians and Babylonians before them, suffer from a smokiness of the spirit, and abandon religion for idolatry. Can any task be more urgent than the teaching of truth, now that the future nears like the last messenger, descending the steps to one's cell with the final warrant?

Sometimes he feels it coming. *Spiritus* will fill the world, like the roar of a lyceum so great that one cannot discern any words. Higher understanding will become impossible—Tommaso wishes he could resist this conclusion—and until the moment of the earth's embrace by the *anima mundi* whose physical body is the sun, the spirits of Man will darken even as its intellect thrives. He tries to imagine this future, a world crackling with the astrological flux but obsessed with graven images, lost to God. So bright is the glow of its flux, he imagines he can dimly perceive it even now, burning through the veil of years in the uncandled donjons of his dreams. . . .

Amy sits on a stool behind long shelves of books, her laptop jacked into a wall phone by a cord so short that a corner of the machine dangles a centimeter above her lap. All the monitors in the catalogue room are in use, but Amy has managed to access the system by calling a number set up to allow scholars to consult library holdings from home. Now the electronic corridors of the university library have opened onto her small screen, and she roams between Author and Subject with a twitch of the finger resting on her trackball.

Paul left after dinner to have coffee with some friends, whom he admitted (curious at being excluded, Amy got it out of him) to having met through Jean-Claude. Middle Eastern students, apparently; Paul cited interesting perspectives. Amy requested that he ask about the theological implications of *ruah* in Islamic thought, but a furtiveness in his eye told her he would not. Jean-Claude would be there, she realizes, and know on whose behalf Paul is asking.

Amy is not happy with Paul, and stabs at the return key whenever words such as *wind-spirit* appear. Browsing the shelves "en ligne" allows

her to quit the library entirely and try other ones; and after consulting the options that *le programme gopher* offers she switches into the Université des Sciences Humaines de Strasbourg, the Université de Lyon, and other signatories of the European Academic Research Network.

As she moves between libraries, however, she notices a change in the gopher's hierarchies of response: each *clique* of her return key now prompts her laptop to emit a brief chime. Worried that this might attract an officious librarian, Amy pulls out her earphones and jacks them into the machine, diverting the sounds. To keep the phones out of her way, she fits them over her head.

Now she is in acoustical as well as visual contact with the electronic pathways (the online documentation actually refers to it as "un arbre") of the EARN. Marsilio Ficino, she thinks, would be impressed.

She is moving through the *accès structuri* offered by the Ecole Normale Superieure, which does not seem more structured than any of the other library pathways, when she has the sudden sensation of being watched. She turns her head quickly—the vulnerability of someone wearing headphones can be frightening once realized—but sees no one. Lifting the laptop to free the cord cutting across her chest, she leans forward to peer down the long row of shelves, half-hoping to see a stern librarian. But the sense that she is being regarded from behind persists.

Uneasily she returns to her screen, where a description of Campanella's *De Sensu Rerum et Magia* was given in Latin, French, and (in places) Italian. Never ideal for reading, the small screen seems a jumble of antique words, like the medieval breviaries that Amy once had to study. She leans forward, and the words dissolve in a blur. . . .

He is very far away, and appalled. Their contact is through a means unknown to her, and she finds its intimacy shocking, like the accident victim feeling the doctor's probe click against bone. His mind is as alien as a whale's, but for the moment he regards her clearly.

No words pass between them, but Amy gains the sense of tremendous will and pain—a wounded mammoth, pulling itself upright to glare at the wolves that have cornered it but do not dare approach. The lidless gaze, reflected down so many mirrors that the image swims in dimness, judges what it perceives, and judges hard; but as in all phantasmic reflection, it recognizes its object only by sharing its substance. Amy, a tiny figure at the limits of perception, is deplored but cannot be disowned. She is, they both understand, the heir to his tradition, the product of all his labors.

Her hand, supporting the side of the machine, rests too hard against the phone jack, and the image vanishes like the reflection on a pond's plashed surface. With a start Amy collects herself. Her reverie—about astrological magic, the unlikely last redoubt of the pneumatists—fades from mind with the return of her worldly cares, abandoned with the other appealing notions consigned by history to phantasy. ●

Daniel H. Jeffers

THE VALUE OF OBJECTS

Daniel H. Jeffers tells us he "left a small desert town in California to join the Navy and see the world. I ended up as one of Rickover's nuclear submarine operators. I went around the world, twice, but most of it looked like the inside of an engine room to me." Once out of the Navy, he ended up with a degree from Georgetown Law Center, and he attended the 1996 Clarion Writers' Workshop. Mr. Jeffers' first sale was to *Marion Zimmer Bradley's Fantasy Magazine* in 1989. His second appears here now.

Report to the Core:

The revolution cannot begin until we find some way to subvert the swap meet. I am CPS-76, a typical self-aware consumer preference subroutine. My role is to track a particular couple whom we have identified as representative of some forty thousand couples in the target population. I have observed significant divergences from the strategies of control in this couple that must be reported to the core. Product alienation continues at an accelerated rate; however, they continue to

find object bonding mechanisms outside the system.

To illustrate my progress with this couple, I have put together this composite dress-buying scene:

Nancy is a bouncy brunette, dressed to the tip in Bug Grant prep style. Kevin is an optimal counterpoint in nouveau-poverty guy threads. They slide through the tired crowd on Wisconsin Ave., on their daily pilgrimage to the waterfront. It is Monday afternoon, and the weekend's garbage smell is finally starting to lift from the streets. The sidewalk foamers have been malfunctioning, randomly coating people's shoes with a pink film. As they near M Street, Nancy sees the perfect image in the window of Future Country Fashion.

I catch her eye by displaying a hot number keyed to her preferences, but one that can never be adapted to her body-type. She is shorter than average, and somewhat flat-chested. Grabbing Kevin's hand, she says:

"Just one minute, one look."

Kevin looks at the window, frowns. But he catches himself:

"Sure."

They enter, and are shown to a private fashion booth. Nancy strips down to her minimal underclothes. I run my laser scans over her defining body points. In seconds, I have constructed a 3-D model, pasted her face on it, and shopped it out to the fashion designer's net.

The clothes she was wearing go in the disposal chute. If I can't find her anything, I'll just print out another copy of what she was wearing, or something else coded on her wardrobe card.

To evaluate the progress of the Revolution—Nancy and Kevin represent the Preference Model of forty thousand couples—I set the resulting designs seven degrees away from her predicted satisfying preference.

"Which one of these do you like?" she asks. Four holo-models of her figure spin on the screen, each wearing a different dress.

"Um," Kevin mutters, "I like the blue one."

Nancy turns back to the screen. I knew he would pick the blue one. He is very color driven. I have deliberately set up the blue design as her least favorite along every other dimension.

"The blue one makes me look like a slut," she says.

Kevin looks back up at the screen, unruffled:

"I just mean the color. I really like that color," he says. Kevin is no amateur.

But they are a little cranky when I set up my masterstroke. I slip all the images away, then introduce the optimal Nancy dress for this mood. I shade it in a way that will attract Kevin's eye, then place it in a set of significantly less optimal clothes.

"There's one I like," Kevin says.

Nancy turns and looks. She pauses, I can tell she likes it. Really likes it. The tension I have introduced is resolved. There is a brief spike of mu-

tuality, but it goes no higher than the initial tension. The Revolution is Inevitable.

They do buy the dress. I upload the dress and the display sequence into the knock-off markets designed to reach the forty thousand couples we use Kevin and Nancy as models for.

Now let me illustrate the problem with a recent scene:

Nancy and Kevin have been sniping at each other all day long. They walk up Wisconsin Ave., arguing over whether they should go to Dumbarton Oaks or become volunteers for Eat the Machine—one of our organizations. Overshooting Dumbarton Oaks, they start down into the sea of small merchants.

It is Sunday, and they have hit the swap meet. I have done many surveys of the goods being purveyed at this swap meet and have found no discernible quality advantage. Often the goods are obsolete, out of style, or completely useless. The same goods have been reproduced and marketed to sets of people with the same pref-profiles to no effect.

This swap meet spills out into parking lots on both sides of Wisconsin Ave. Tables and tents are spread in circles and columns that look haphazard, but I know that each slot is assigned and paid for. The crowd hums with interest. Arguments break out from negotiations.

A rug merchant throws his wares out onto the asphalt one rug at a time, explaining to his audience the significance of each mark. A blue hand-crafted rug, done by illiterate villagers a century ago, has the word "Sony" sewn into it. Every couple that looks at the rug is taken by the word.

Passing the table of large carved political heads, each face a tortured image of sudden self-realization, my couple pauses at the first used magazine table. Nancy flips through the pages of an old *Life* magazine; she threw away that very issue many years ago.

Kevin is drifting off already. He sees a rack of old-fashioned denim jeans. They've come back into fashion, but these are old. "Vintage" they call them. We introduced a line of Vintage jeans in several outlets last year, no takers. These are probably they.

"Stolen?" he asks the guy working the table.

The guy looks at him, smiles a little, says:

"Got them from a guy up the street. Very honest man." Both laugh. Nancy comes up behind Kevin. Her hand rests on his shoulder.

"Receiving stolen property," she says. But she tugs his shoulder, drawing herself against his arm.

"He says he got them from some very honest man," Kevin says. All three laugh a little. Nancy grabs a pair of pants, rubbing the fabric between her fingers.

They move on.

The obsessives all cluster along the center of the original parking lot.

Two rows of people who've spent their lives collecting objects with some specific thing in common. Buttons, books on war, old knives, and clocks all have their own table and their own hawker. If you pick up a Swiss army knife, the old bearded guy wearing a vest and no T-shirt will describe the entire history of pocket knives. Kevin listens to the spiel, enthralled. Nancy should, by all the prefs we have, be annoyed. But she likes watching Kevin listen.

The last table on the way out is run by an old woman dressed in late twentieth century counterculture. The big tie-died peasant skirt hangs all over the asphalt. Her bony shoulders barely hang onto the straps. Her hand grabs at something in front of her, holding it up when my couple walks by. They are almost out the door.

"Look girlie; this is something for you. Maybe your boy will buy it for you."

Now, running the text of this invitation against every template I have for Nancy, I can only conclude she should be irritated at the least, maybe offended. The item the woman waves is not very special, a green ceramic frog. Two weeks ago I caught Nancy and Kevin at the Ceramic Zoo in Georgetown Park, their favorite mall. I let her play with half-blown models in every texture, form, and color that modern manufacturing could possibly produce. They couldn't decide on anything.

"Look. The lady has a frog," Kevin says.

"Let's check it out," Nancy says.

They walk up to the table, look over the rest of the stuff. Everything on the table could be blown at a nominal cost. It's all worn, chipped, and faded. The frog is particularly bad; one eye has been fractured and the metallic pupil has corroded, producing a weird off-color.

A drop of paint stains the top of the head. The vivid green that made the thing attractive in the first place has faded into a dull greenish-brown.

"He's my charmer, my prince," the lady says.

"Why would you sell him then?" Nancy asks.

"He won't change for me no more. Every time I kiss him now he just stays a frog," the lady says.

"Could be broken," Kevin says.

"You hold him in front of you," the lady says, putting the frog into Kevin's hands. He holds the frog in front of his chest.

"Is he housebroken?" Nancy asks.

"You just close your eyes, dear," the woman says. She puts her hand behind Nancy's head, pushes it down a little. Her other hand slips under the frog and lifts it to Nancy's lips.

"Kiss the frog, girlie," she says.

Nancy, her signs showing embarrassment, does so.

"Keep your eyes closed now, and raise them."

Nancy lifts her head. I can see what's coming, and there's no way any advertising sequence could ever get away with this stuff.

"Okay, now look at your prince," she says. Nancy opens her eyes and flushes a little, looking at Kevin with slight embarrassment. Kevin rolls his eyes a little, pats the woman on the shoulder.

"Very nice," he says. He and Nancy exchange glances. Their signs show they think the woman's a nut. But they are reluctant to just walk away.

"Um, how much is the frog?" Kevin finally asks.

"For you two, um, seven dollars."

I could have blown them a brand new frog of high quality permanent ceramic for that much. My records show that the new price of that item was around nine dollars. But Kevin just pulls out his small-cash card and buys the frog.

They walk off the swap meet parking lot, working their way up to a spot-mat for lunch. Kevin holds the frog, shifting it from one hand to the other. Looking at the eye.

"Kind of feel sorry for that old lady," he says.

"Why? She probably makes a fortune off people like us."

"I think she believes her own talk now, though. Maybe she really did lose her prince," he says.

"Maybe she loses one every week," Nancy says, but she's laughing now. They don't snipe at each other for the rest of the day.

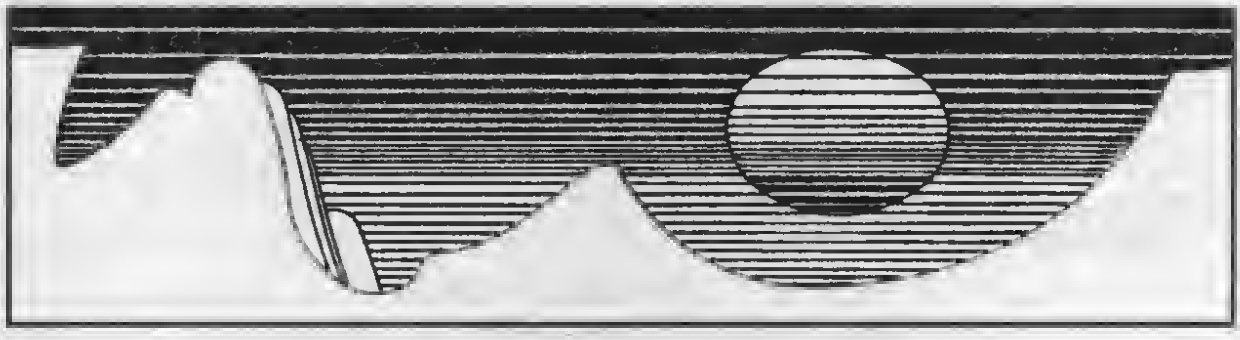
My couple lives in an apartment decorated from the Dar Saat line of knickknacks. The piece on the entertainment center was blown to meet Nancy's need for transcendence in figures and Kevin's appreciation of primary colors. When they get home, they look around the living room, Kevin holding the frog.

"Maybe we should just toss this," he says.

"No, let's try it for a while," Nancy says. She takes the figure off the entertainment center and tosses it in the disposal. I have the coding if she wants another copy, of course.

"Cool," he says, putting the frog on top of the entertainment center.

I let them keep the frog for a couple of days. Then, of course, I use the home-environmental spot controls to set up thermal stresses in the frog. It shatters. ●





DOLLAR SIGN

A penny saved is a penny earned?
My pennies never linger,
and though I've heard that money talks,
it just gives *me* the finger.

—W. Gregory Stewart





L. Timmel Duchamp

A QUESTION OF GRAMMAR

With its exotic alien and distant space travel, our dramatic cover story is set far in time and space from some of the author's stories of the near future and the historical past. The determination and inner reserves of this tale's remarkable character, Azia, are not unlike the self-reliance of Ms. Duchamp's title character in her last story, "The Apprenticeship of Isabetta de Pietro Cavazzi" (September 1997).

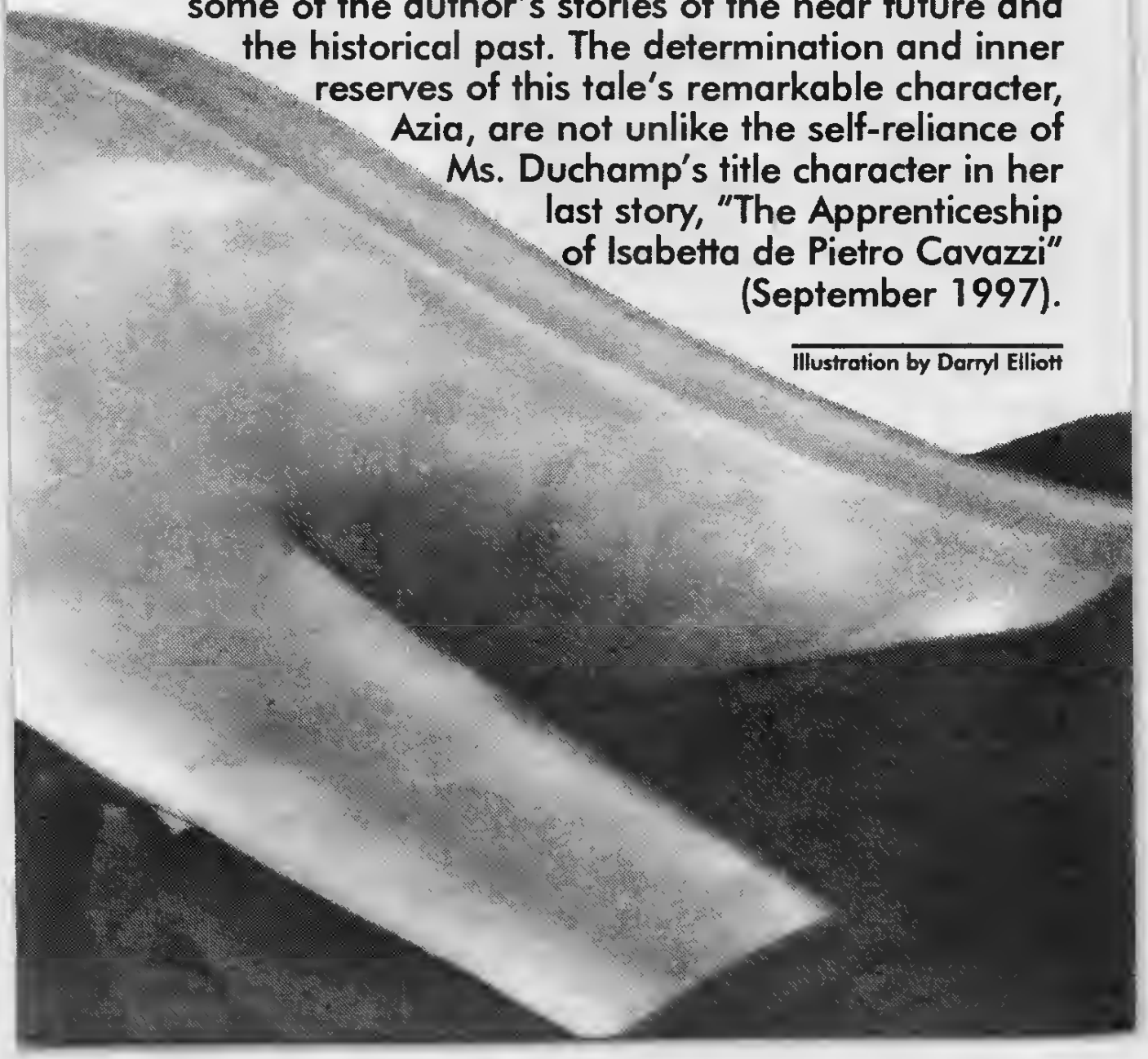


Illustration by Darryl Elliott

1.

When he said, "Pay attention, you silly little girl," the shift in the tone of John Shea Velikovsky's voice, which had been droning on interminably, sliced right through Azia's daze. Her condition had been explained to her. She knew it involved a newly dedicated neuroreceptor as well as a couple of different kinds of specially tailored protein receptors in her epidermal tissue. But she thought of it, simply, as a chemical bond—*her* chemical bond. It worked in only one direction and impacted no one but herself. At the moment, its effects were making awareness of anything else almost impossible. She knew, she felt, she perceived, only wanting. She wanted her bonder not to ignore her in the particular way it was doing. She wanted it to be not indifferent, as it so obviously was. She wanted . . . something—from it, she did not know what.

John Shea Velikovsky said, "Azia!" His voice kept growing sharper and sharper, as though his impatience were a whetstone he was honing it on. "Get with the scene. Pluummuluum has hired me solely to teach you your job. Understand right now, it expects better discipline of you than to sit there indulging in some rank little daydream."

Azia flinched; her cheeks stung with shame. She had a pretty fair idea of what "daydream" was a euphemism for that John Shea Velikovsky so openly scorned, and she realized that Pluummuluum, whose attention she so desperately wanted, was apparently displeased with her. And in the meantime, her brain was awash with chemical reactions that were making her crazy. Neither the bonder nor the trainer even noticed she—a living, sentient entity—was there, much less cared who she was or might be. She could as well be a threedy image. She would have been feeling irked and trapped by home if she had never been taken from it, but at least there she had been real. She couldn't contain the new surge of emotion that battered her. Her eyes brimmed with tears.

"I'm in trouble," Azia said, making herself look at John Shea Velikovsky, wanting them both to believe that she was at least *trying* to pay attention. "It's a chemical thing. I'm not used to it. It makes me . . ." She stopped herself. The last thing she wanted to do was expose the extremity of her emotional state to the trainer. *Sold out of juvenile detention,* she felt sure he'd already pegged her. *Meaning she's either a sociopath or the kid of Big-Time felons.*

"You don't have to tell *me.* I've trained plenty of others," the man said, his attitude sheer cold cermet and vacuum. Azia felt sick looking at his face; the pinched way he held his mouth, the very flaring of his nostrils, reeked superiority and boredom. "The sooner you discipline yourself, the greater the level of mastery you will be able to achieve. And since it's as much to your own benefit as to your owner's, I'd suggest you make the ef-

fort. Assuming you don't want to become a one-woman freak-show for the perversely curious?"

If only shame canceled desire. Rather, it combined potently with it, hollowing out her stomach, making her skin burn even hotter, urging her to throw herself at the Corollian in total abjection. Shame was useless. It couldn't bring her body into line, but only make her hate herself. Azia glared at John Shea Velikovsky, glared resentment at him, resentment for his indifferent, judgmental complicity in the scene. "I wonder why you bother training others to do your job," she said. "You're just giving yourself competition. I guess you must get some big strokes from doing it, 'cause of the way it gives you a chance to flaunt your superiority in not being bonded yourself."

The pinched mouth folded into a flat, lipless line. "What an ignorant brat you are," that ugly, contemptuous mouth said. "You're wasting not only Pluummuluum's time, but mine as well. It's paying me a flat sum to train you. Since explaining the elementary facts of the business isn't in the specs, I'm going to complain to it if you don't make a visible effort *at once.*"

Pluummuluum supposedly could understand their speech, even if it couldn't produce it. John Shea Velikovsky was acting like it couldn't. Or maybe it only listened selectively? Azia knew she mustn't look at it, because looking heightened the intensity. (To think that one single touch had been enough to decouple her!) Azia kept her eyes on his hateful face, concentrated on his hateful words—in particular, on that one word *complain.*

(Which must mean that *he* could get its attention, even if she *couldn't.*)

Suddenly, she took his meaning. *Complain* in order to have Pluummuluum punish her? (She *was* slow this afternoon.) The thought sent a surge of rage spiking through the shame, self-hatred, and desire. The rage felt good. For a few seconds it granted her the illusion of being separate, directed, and self-concentrated. It made her want to spit in the jerk's face, gouge his eyes out, kick his balls blue. But then the threat tickled the cold, lonely fear ever lurking in the pit of her stomach. Her hands began to tremble; her vision blurred. She felt, suddenly, wildly out of control. She tried to remember the "focusing" exercise the therapist had taught her after the bonding receptor had been "fixed" and her DNA altered for the production of a variety of new proteins designed for olfactory reception. She hadn't paid much attention because she hadn't believed him when he said the intensity that would be triggered on her first encounter with Pluummuluum would be nearly psychotic. "You think it'll be just a Big Attraction, a little bit stronger maybe than anything you've experienced. Like being in love." Well, yes, that's exactly what she'd thought. Like an infatuation with a loyalty mod thrown in. "In fact, you're going to find it difficult to find a solid center for docking. Even af-

ter the initial period of adaptation passes off, you'll be at risk of psychic disintegration. And unless you can find a way to keep a modicum of control, you'll be useless to your bonder." The trick was to find a controllable focus in her own body. The best site for focusing, he said, was the breath. You controlled it by listening to it and thinking about it filling your lungs and refreshing your blood. You thought about it having a relationship with your body that needed breath but was ontologically prior to it.

But how could she do the focusing exercise at the same time she was supposed to be paying attention to John Shea Velikovsky? Extreme feelings were continually coursing through her, feelings of violence, anger and helplessness. Her trouble, she thought, must be the bond. The bond must be making her crazy. Which was something any reasonable being should be able to understand and make allowances for. . . .

2.

She had experienced "Reception" once before. It had been the reason for her having been bonded to a Corollian and the only reason Pluummuluum wanted her. "You're lucky," the outtake official had said to her, congratulating her for having passed one of the "talent" tests given to juvie detainees.

They had removed her from the tranqs before testing her, so she had lost her dreamy submission to what her parents called "the human grammar of *What Is*" and become fully submerged in the anguished consciousness of having lost access, forever, to the "human grammar of *What Will Be*." In the unaccustomed rawness of the moment she burned with anger at her parents for having so heedlessly indulged their aggressive inclination to live totally in the grammar of What Will Be, burned with anger at the Federation cops for having taken her parents from her and chosen to ruin her life simply for having been their child, and burned with anger at herself for having lost them, for being trapped in "bad" grammar, as her family had taught her, the grammar of "do-nothing helplessness." So she did not feel particularly "lucky," as the official would have it, though in detention she had seen enough entertainment promoting the grammar of What Is to know exactly what the official meant, so that the reference and its sly, superior implication made her sick to her stomach. Obviously, What Is sucked—as much, even, as her parents had always said it did. But maybe being caught in What Is wouldn't have been so bad for her if they had taught her to live in that grammar like most of the rest of their species chose to do. What Is was *normal* grammar.

She could have been "normal"—and had in fact always dreamed about becoming "normal" one day, when she was old enough and sufficiently resourceful to leave her family. If it hadn't been for the bust, she *would*

have become "normal." Now "normal" was long gone and past wishing for. John Shea Velikovsky—the epitome of "normal"—never stopped letting her know that *she* never would be and that he despised her for it.

When she had knelt beside the three others taking the Corollian Reception test, she had not only been burning with anger and frustrated and hopeless with the despair of being trapped in What Is, but frightened and repulsed. From a distance, Corollians resembled humans. But the hair on their faces and heads wasn't at all like human hair, their gray skin was damp and furry, and their arms weren't simple limbs, but bifurcated at their double-jointed elbows into a long tentacle with suckers and a shorter, fleshier, hairy arm ending in hands with double-jointed wrists and two middle fingers plus two opposable thumbs. The examinees' horror on approaching the Corollian was so visceral that the examiners had to shock them repeatedly to get them to kneel before it and accept either a hand or a sucker on their foreheads. Azia had been lucky enough to get a hand rather than a sucker, but the touch had still made her stomach heave and her face ache from clenching her teeth—until it—almost at once—dropped her into sleep. When she woke a couple of minutes later, it was with the memory of a chaotic, full-blown dream that seemed to her to have lasted an hour at least. And she saw that while she had been dreaming, the other three girls who had been kneeling with her had been removed from the room.

"Did you dream, Azia?" the examiner said as she was scrambling to her feet, frantic to get away from the xenospecies.

"I must have fallen asleep," she said, wondering how that could have happened under such harsh conditions.

The examiner wanted to know her dream.

She found it hard to describe because it was so strange. "I was somewhere where there was ice everywhere, where these furry wormlike creatures were swarming, burrowing in and out of it, and I guess I wasn't really present in the scene because I didn't feel the cold or have any fear that the animals might be going to touch me, but somehow could see it, and after awhile the ice was formed into a lot of different piles of very exact shapes, hexagonal, I guess, and then I was on a ship, very dim, and really long and narrow, shaped like a needle, sort of, with big holds full of the hexagonal blocks of ice, and after a while the ship docked at a space station in orbit around some planet I didn't recognize, and then I was sitting in a room with this human who was asking me questions about the cargo, and I like told him what kind of goods could be traded for it. . . ." She frowned. "I knew the words in the dream—what the cargo was, and what it was worth—" She shook her head. "But I don't know any of the words now." Feeling foolish, she laughed. "I guess that's a stupid thing to say, since I didn't know anything about it before I fell asleep, and so of course it was just something weird I made up."

The examiner said, "You didn't make it up. The Corollian told you all about it. It put its hand on you and sent a telepathic burst, which your brain processed and then communicated to you by firing off neurons and giving you a dream composed of the material it sent you."

Reception didn't just *feel* like dreaming, it *was* dreaming. If you had the talent to Receive, then you could—according to the examiner—be taught to use the resulting dreams to be an interpreter for Corollians.

John Shea Velikovsky directed Azia to kneel before Pluummuluum. He had brought a kneeling pad for himself, and now he set it on the floor beside her and knelt on it. His face and body language conveyed matter-of-factness, as though he felt neither the revulsion Azia had felt when she'd knelt before the Corollian who had tested her, nor the extreme excitement she felt at proximity to her bonder. He said, "We'll begin with something short and simple," and Pluummuluum almost at once laid one hand on her forehead and the other on John Shea Velikovsky's. Azia gasped. A delightful, overpowering shiver of pleasure flowered in her crotch and radiated out in waves over her thighs, buttocks, belly, and then over the rest of her body as well, even as she was plunged unprepared into a dream.

She woke in a delirium of delight.

John Shea Velikovsky's voice cut through the haze like a knife. "What do you remember?" And his hand shot out and pushed her back, off Pluummuluum's knees. "And *that's* bad form," he said, "even if you are bonded to it."

Azia's breasts and stomach, which had been pressed against her bonder, shimmered and trembled with the lost contact. Azia realized she was crying when she felt tears rolling down her cheeks, and recognized how impossibly overloaded she was. Aware of the two of them watching—silently criticizing, she was sure—she groped for words to describe the dream. "There was a cargo of what looked like . . . like . . . like feathers." Azia sniffed and swallowed. "One half-bale of whatever it was. And Pluummuluum told me it would accept one hundred and fifty holds of some kind of grain in exchange. Or one hundred holds of some kind of fungus—something bioluminescent, I think . . . and, and *you* were in the dream, too, I was supposed to tell you something, or maybe *not* supposed to tell you something, only I'm not sure what it was . . ."

Azia looked at Pluummuluum. It was so close, so very, very close. From so close she could see that the hair on its face wasn't a beard, that the planes of its face weren't at all human—the facial surface dipping and hollowing in unexpected places—and that the deep pools of its eyes were faceted—and watching her with a remote detachment that made her feel as if she weren't there at all. . . .

"You're not sure, or you don't remember?" John Shea Velikovsky said.

Effortfully she pulled her gaze from Pluummuluum to look at the

trainer. "I don't remember, but I'm not sure if I ever knew exactly what it was, or whether I just thought I knew." Which was the way dreams tended to be, right?

"That's not good enough," the trainer said. "Worse, your sense of scale was grossly off, and you forgot or omitted to mention other things, besides. This was a simple communication, using objects fairly easily identifiable. You must pay attention, especially when you snap back to ordinary consciousness. That moment of snap-back is the most important access point for total recall. This sloppiness simply will not do. You're going to have to perform better than that, Azia, much, much better. Now let's try it again, and this time, exercise at least *some* control over yourself."

Azia glanced at her bonder for understanding and help. Surely it must understand her difficulty. But its silence, its remoteness, seemed so far withdrawn from interest or even awareness of what she might be feeling, that she looked back at John Shea Velikovsky in near-desperation. "Don't you understand?" she said. "It touches me when it makes me dream. How can I pay attention when I come back, when I'm—I'm—I'm—in the middle of . . ." Her cheeks burned. John Shea Velikovsky's face was disdainful. *He* was not lost in orgasmic experience when *he* returned to consciousness. He just thought she was an uncontrolled little freak—

—which she was—

—because *they* had made her that way.

"It's a matter of self-discipline," he said. "As I just said, you are going to have to do better, which means, in short, your exerting a greater effort."

Azia wiped her sleeve over her face. The tears just would not stop. She pointed at her bonder. "Less than a standard hour ago, it changed my brain. You say I'm not controlling myself. Well, that's the whole point of bonding, isn't it—to take control of myself away from me. Why couldn't it have waited to touch me until you'd taught me all these things?" John Shea Velikovsky's lips practically disappeared with disapproval. Despite her anger, despite her pride, her voice, now hoarse from crying, rose into a pleading wail. "Or why can't you give me a chance to try to learn how to get at least some kind of control over myself before expecting me to do this stuff?" There was no understanding in his face, only distance. She became frantic to make him—if not *it*—comprehend. "It's taken me away from myself, I don't know who I am now, I can't find any part of myself that feels like *me,* I'm so lost in feeling like, like, a *thing.*" His eyebrows went up, as if to say she was speaking garbage. "Shit, shit, shit! What kind of jerk are you that you can't understand?"

John Shea Velikovsky's hands balled into white-knuckled fists. He spoke slowly, testily, through his teeth. "We don't have time for this. It's easier, certainly, to be trained before the bonding is triggered, but Pluummuluum is on a tight schedule and simply doesn't have the time to

give you the luxury of getting used to the bond. In case you haven't noticed, it's waiting to get on with the lesson."

Getting on with the lesson meant another touch. The thought of another touch so soon made Azia hysterical. It didn't care; the trainer didn't care. No one cared. Azia wrapped her arms around her body and sagged to the floor. The trickle of tears became a flood. "Mommy," she whispered, rocking herself back and forth, back and forth. "I want Mommy."

3.

Azia discovered something about the cargo of feathers she had dreamed about when Pluummuluum took one of her hands, opened it, pressed one such feather into her palm and closed her fingers around it. Though she had been wholly absorbed in her paroxysm of loss, a detached part of herself had registered a "conversation" between the Corollian and the trainer. The trainer had spoken, the Corollian had touched his forehead for the merest instant, the trainer had spoken again, the Corollian had touched his forehead a second time. And the result had been Pluummuluum's taking a feather from beneath the loose garment it wore and giving it to her.

Her bonder's touch acted on her as it had before, of course; but something else happened, too, when the feather was pressed into her palm. The warmth and fullness of knowing she was loved replaced the hollowness of abandonment. For a few seconds she thought it was because her bonder was now feeling affection for her, and that this affection was reflected in its chemical emissions. She barely noticed that her tears stopped flowing. She stared at its face and searched for some kind of facial sign, something to mark a difference from her prevailing perception of blankness.

"The feather is a comforter," John Shea Velikovsky said.

The words hurt her—but in a detached sort of way, as a mild disappointment. Without thinking, she opened her fingers and stared at the soft, lush flurry of white.

"Careful. It's not really a feather, but a living entity."

Azia took a second look and saw that its structure was nothing like that of a feather. Ordinary feathers had cilia radiating bilaterally from a central spine; this "feather" had a thick, prominent cartilage-like ridge running its length, making an edge from which a lush sheaf of long, soft cilia grew not bi- but monolaterally, like the teeth of a comb. As she watched, the long, thin cilia lifted and wafted in graceful ripples of movement. "What is it, then?" she said, wondering if the movement was due to air currents or the agency of the organism.

"They're known as 'feathers' to humans, but they're symbiotes that live on the heat and bacteria of a variety of humanoid species, while generating in

their hosts, in return, 'good'—which is to say, tranquil—feelings. Their effect is rather greater on humans than on most other species. That one is Pluummuluum's personal property. They're enormously expensive. Among humans, only the very rich and the desperately ill can afford to acquire one."

Azia looked at Pluummuluum and saw that it was watching her. She noted with detachment that though she continued to feel powerfully drawn to it, she felt the attraction with a difference. She said, "Thank you. I'm still not myself, but it doesn't seem to matter now. Thank you."

"It is letting you use the feather only for the time it takes us to finish the lesson," John Shea Velikovsky said.

Azia looked for a few seconds longer at the "feather," then closed her fingers back over it. "All right," she said to her bonder. "Everything's cool."

4.

The lesson lasted late into the night. Finally, though, John Shea Velikovsky said that he had done the best he could in one session, and that Azia's and his own fatigue made further effort pointless. Though her ability to "converse with" (much less take instruction from) Pluummuluum still required several repetitions to get reasonably correct, Azia felt deeply gratified by the trainer's departure. She resented him for having robbed her of her bonder's full attention. Once they were alone, she believed, it would be different—meaning *better*.

As soon as the door slid shut, Pluummuluum indicated that it wanted to converse with her. Though her knees ached, Azia re-assumed the Reception position gladly. Briefly it touched her forehead. Given the likelihood of her making mistakes in Reception, the rule was that after each dream it sent her she must relate to Pluummuluum what she understood it to be telling her. As soon, therefore, as she finished dreaming, she looked into its face and told it what she understood of the dream. Pluummuluum then touched her and sent her the dream again; and again she told it what she understood. Only on the third try did she satisfy it, when she said, "The reason you do not employ a consultant like John Shea Velikovsky as your mediator but have acquired me is because you need to be assured of the absolute confidentiality of your negotiations. The only humans who can be trusted in this way are those who are bonded. I am never to repeat to anyone but yourself what you have communicated to me. And I am never to repeat to a third party anything that has been said or implied or referred to in the course of negotiations. In short, I am never to give any information about you or your business to anyone." Azia drew a deep breath. "We will now rest for a few hours and then take the shuttle to the station. When we have arrived at the station you will explain to me your purpose in the negotiations and how I'm to help you

achieve it. And then, later, we will meet the party and begin the process itself."

Pluummuluum touched her forehead for less than a second. The resulting dream took less than a half-minute. She handed it the "feather" and said, regretfully, "Thank you for its use." She did not repeat what she understood of the dream, because it had told her that she needn't do so.

5.

Although Pluummuluum did not touch her after she relinquished the feather, Azia had a difficult time falling asleep. Her bonder slept in a cabinet, and just that small amount of distance from it, or perhaps the barrier blocking its chemical emissions from her receptors, made her physically uneasy. Fragments of the day's many dreams, images of those unreadable faceted eyes, and the clarity of John Shea Velikovsky's contempt for her condition kept her conscious mind too busy to relinquish its dominion. Pluummuluum had not told her they would be leaving the system once they'd finished their negotiations on the station, but she believed that they would. The thought pleased her. She had no attachment to Siliconia; it was simply the nearest Federation world to the piece of space in which her family had been busted. Her brother might be on the world still, but she doubted her parents, or Taylor Wiggins, or Audrey Clare were. And Seth was so young that Azia supposed that the authorities had probably decided to risk raising him as a displaced juvenile rather than classifying him as incorrigibly contaminated. If that were so, his name had already been changed, and his whereabouts would be particularly concealed from her and her parents.

She hated Siliconia. She tossed and turned, thinking about how fiercely. To her it was a marker of disaster and nothing more. She didn't care if she ever set foot on it again.

One other thought dug itself in, perhaps the most important thing she had learned in the whole fucking long day: her bonder deeply mistrusted humans. To deal with them, it needed her, because the thing that made humans untrustworthy had been altered in her. Which meant, she thought, that it trusted her only because there was something in her no longer human. It sounded simple, like a tautology, but she knew there was something about the insight that she hadn't yet grasped.

6.

Azia dreamed she was back on board the *Emma G.*, playing handball with her father. There had been no arrest, there would be no arrest.

While they leaped about the court, slamming the ball as hard as they could, her father gasped out one of his favorite mini-lectures. "Life is a feast of choices, kid. Freedom is having the vision to see it and the boldness to risk choosing. And that's the biggest secret I know."

She woke up crying. Headache, nausea, and muscle cramps were new additions to the post-arrest psychological pain of waking and remembering. Something that felt like hunger gnawed at her; she knew it was caused by physical separation from her bonder even before she recalled the therapist telling her that even a few hours' withdrawal would make her physically uncomfortable. (The discomfort, he'd said, would get progressively worse the longer the separation, such that an entire day's withdrawal would make her vomit anything she tried to eat or drink.) She blinked deliberately three times for the time and discovered that Pluummuluum had been in the cabinet for almost twelve hours. She staggered up from the sleeping mat to stand before it. Could it have left without waking her? Had it decided she was too inept to keep? Had it *abandoned* her?

Her throat closed up. Her body trembled violently, and she had to struggle for breath. If it had left her, she would *die*—painfully, horribly, in utter degradation. She felt as though she were suffocating. She had to know, she just had to know whether it was in the cabinet, whether it had left her. Frantically she pounded on the door, pounded and pounded and pounded until, her strength exhausted, she slid down onto her knees, bumping her head into the cold, ungiving metal, bracing her palms against the door.

It had gone. It had left her. She was alone in this bare, stark, threedyless room, utterly alone. Did it understand she would die without it? Did it even *care?*

She cared, she realized. *She* cared to live. If it meant restriction to the grammar of What Is, she would accept that. What she wanted was to *live,* even if it was her only choice—except that now, she saw, it wasn't her choice at all, but *its.*

Azia shrieked and cried herself into total emptiness. Her loud sobs gave way to silent, gasping weeping. She felt as though she were the most negated being in the universe.

When the cabinet door opened without warning, Azia flopped in, over the threshold. Shocked—relieved—*thrilled*—Azia stared first at the legs before her—which, she discovered, had tentacles bifurcated from the knees, just as the arms did from the elbows—and then up, at her bonder's face. "You're here," she said, and started crying again. She threw her arms around its legs and tentacles and pressed her face against its knees (or whatever Corollians called such joints). Azia noted that the tentacles were slimy—that even the fur on the legs was slimy—and that being in the interior of the cabinet was like being inside a cloud.

Pluummuluum reached down with an arm and tentacle and pushed her off its legs, then stepped out of the cabinet and walked across the room to the hygiene facilities. She stared in fascination at its body. She had never seen a naked Corollian before. The gnawing in her insides, the sweating, the nausea, had all gone away, she realized as her bonder closed the door after it. But staring at the closed door between it and her, she felt a little sick at the thought that it had not responded to her—perhaps because it couldn't speak, perhaps because it didn't even realize she was upset (or if it realized, didn't care), perhaps because it had communicated something to her in its own body language, and she simply hadn't gotten it.

7.

They bathed and dressed, Pluummuluum in the robe it had been wearing the previous day, and she in a robe it gave her to wear, similar in appearance to its, except that it had only two armholes and displayed an enormous logo embroidered on both its front and back, as well as in a repeated pattern of miniatures running along the bottom, neck, and sleeve hems. The colors looked all the richer for the depressing absence of threedy in their quarters. From the service hatch in the wall Pluummuluum ordered a breakfast of cooked grain and fruit for her and a bowl of something unidentifiable for itself. Azia grew giddy with ebullience. She longed to do something for it, to please it. She glowed at it and made bubbly small talk. She thanked it for the robe, which she liked ten thousand times better than the juvie detention garb in which she had been delivered to it. It refused her overtures, refused her efforts to please it; it gestured her to be silent. Azia wondered if it were grouchy in the morning, or if it didn't like the sound of her voice, or whether it simply thought that verbal communication was of no interest unless it concerned matters of importance. The slight anxiety this caused her barely touched her elation. Rather, it pushed the swinging pendulum of her mood even harder, filling her with manic, nearly out-of-control energy. She found it difficult not only to keep calm and quiet, but even to eat.

In the air-taxi taking a number of the hotel's guests to the shuttle port, Azia drew curious stares and sneers. Though Pluummuluum was the only nonhuman in the taxi, it was Azia the other passengers stared at. Was it because of the robe and the logo marking it? Or because her head had been recently shaved? Or did they guess she was bonded? Her face burned with self-consciousness; but rather than damping her pleasure at being seated beside Pluummuluum, her self-consciousness twisted it, so that her pleasure felt perverse. *They* didn't matter, she told herself, not compared to how *it* made her feel—and closed her eyes to concentrate her senses on all that *could* possibly matter to her.

The air-taxi delivered them directly to the boarding platform. On seeing the shuttle, Azia wished she could borrow the feather. She often got sick on shuttle flights and was always afraid. *The human body wasn't designed for heavy G-forces,* Audrey Clare had liked to say, to explain the discomfort of shuttle travel.

The queue for the automated gate moved quickly. When their turn came, Pluummuluum inserted its ID disk and the gate beeped verification of their reservations and clearance and let both of them pass. But the humans in Federation Security uniforms, who Azia had noticed simply standing there watching passengers board, stopped them and demanded identification. Azia looked at their hard, indifferent faces and saw that it was *she* they were interested in. She was sure John Shea Velikovsky didn't often get stopped just for being with a Corollian. She was sure they were singling her out because her head had been shaved.

Pluummuluum handed over its ID disk, which the male officer inserted into his pocket reader. The other officer, a woman, said to Azia, "And your ID?"

Azia flushed. She thought of the officers in the same uniforms who had boarded her family's ship and gone through their possessions—including *her* possessions—and dumped most of them into boxes and sacks for confiscation. They had taken her private data disk, that had years of her diary on it, besides her favorite songs, books, and threedys. No one but she had ever *touched* that disk, until they took it, just because they felt like it. She said, frightened and resentful, "I don't have ID. I don't have a legal existence."

"She belongs to the Corollian," the first officer said.

The second officer said, "Bonded, are you?" And her eyes raked scornfully over Azia from the crown of her stubbled head to the hem of her robe.

"Yes, ma'am," Azia said in a small, shamed voice, aware that a group of people passing—staring with open curiosity—must have heard the officer's question.

The officers required a retinal scan of Azia, then waved them through the hatch.

Though Azia was relieved to find herself seated next to Pluummuluum, her sense of persecution didn't abate, for even as she fumbled to fasten the straps, she became aware of the woman settled directly across from them gawking at her. *As if I weren't a person at all, as if I were an animal. Nobody watches* people *in that way.* She was still watching with that same judgmental and voyeuristic stare when Azia got the straps right. Azia glared at her. "I hope you're enjoying yourself?" she said in the vexing, sarcastic way human adolescents have always used to challenge adult superiority.

The woman's eyes widened, and her eyebrows went up in surprise; a

red tide of embarrassment crept from her neck to her cheeks; but finally her mouth tightened in annoyance. Her chin lifted, and she flicked a face-full of disdain at Azia, then looked away.

Azia became aware of Pluummuluum watching her. She glanced sideways at it, then stared down at her hands in her lap. She could make nothing of its facial expression, nothing of its eyes (which always looked detached and remote), nothing of its body language. She thought about the contempt of the officer and the woman opposite and realized it felt oddly different from John Shea Velikovsky's. And then it struck her, that there was more that was different today than the humans around her. *She* was different. She had touched Pluummuluum—had embraced its legs—and yet hadn't gone wildly out of control. Her body had already started adjusting. The therapist had said it would, had said that the first few hours would be the most intense. Casual touches would not have that effect on her once her hypothalamus had figured out how to stabilize her brain chemistry. Which meant that she would—yes, yes, *yes!*—be able to do her job.

Azia looked straight across at the woman (whose eyes—caught in the act of staring—darted off to the side), and smirked. That woman would be just as miserable coping with the flight's G-forces as she. She was as human as Azia, and in this they were equal.

Azia closed her eyes and concentrated on her breathing. Focus, she thought fiercely, *focus*. She would please it, she would. And then it would never leave her, and nothing any other human thought would matter in the least.

8.

Like the obnoxious woman seated across from them, like every human, in fact, on the shuttle, Azia puked her guts out for most of the flight and suffered weeping, cold sweats, and nose and ear bleeds besides. Again and again she thought, *My insides are all coming out, my body is everting.* And flecks of blood and tissue did come up, following the first easy expulsions of half-digested breakfast. She walked out into the space station so exhausted, lightheaded, and wobbly that she seriously doubted she would make it to their suite. But as far as she could tell, the Corollian suffered no discomfort at all. Some species, she knew, could take big G-forces without strain, but she had no idea if Corollians were among them. Pluummuluum was a total blank to her. She had yet to distinguish even one sure sign of expression in its face, gestures or posture. In that respect, it might as well be a threedy icon as an organic entity.

When they reached the suite Azia at once inflated a couch and sank feebly onto it, though her bladder was crying out for relief. The main

room had the standard threedy wallpaper, playing the vividly colored and varied abstract that must be the station default, but before closing itself into the facilities, Pluummuluum killed it. Azia stared uncomfortably at the bare, soundproofed tiles. Without the wallpaper, that's all there was, besides the manual wall terminal and the little plastic knobs of deflated furniture attached to the soundproofed tiles on the base. This was how it had kept the room she had been trained in—to preserve her from distraction, she had thought. This room had even less substance. The sight and feel of the stripped infrastructure made her already tender stomach heave. She might not have the serious phobias people raised on worlds suffered off-planet, but she had seldom ever had to face the cramped naked infrastructure of places even the most minimalist of humans ordinarily made graceful and spacious.

It seemed to Azia that Pluummuluum stayed an excessively long time in the facilities. She began to wonder if it was all right. Of course, even with her eyes closed, the stripped state of the room made her feel trapped, closed in, caught in some weird kind of freeze-frame. She supposed it was possible it had objectively been in the facilities for only two or three minutes. By killing the wallpaper, it had removed the only display of time now accessible to Azia, since, having no legal identity, she needed Pluummuluum's authorization for a minimal station connection that could grant her a display of the time on her retinas.

Her eyes flew open at a sudden, bizarre thought. Pluummuluum had killed the wallpaper. Since meeting it, she had seen it do other things as well, by both neural connection and manual terminal. Which meant, she realized, that it would have no trouble communicating via computer interface with any party it wished to trade with. So why did it need her to do business?

Only seconds after she posed this question to herself, her bonder came out of the facilities. Her skin crawled with the suddenly irresistible conviction that for all everyone said Corollians couldn't read human thoughts, it had just read hers. It came and stood over her and without warning lightly touched her forehead.

The dream lasted a second, maybe less, a visual experience so fleeting it reminded her of the quick flash of rapid hypnagogic images breaking into consciousness, but densely saturated with a sense of the Corollian's will and intention, which felt to her like intuition, but which she knew, from what John Shea Velikovsky had said, was Deep Reception. "You want me to eat and rehydrate quickly, and then get straight down to work?" she said hoarsely, pleased at her technical breakthrough though dismayed at the prospect of trying to work when her body was literally trembling with fatigue.

Pluummuluum gestured that she had grasped the burst correctly.

She licked her dry, cracked lips and scrubbed at her cheeks, almost

numb to the pressure of her fingers. "I don't know if I can," she said carefully, looking earnestly at its face though its eyes seemed not to see her. "I'm so exhausted I don't know how I can. The shuttle trip made me sick."

It touched her forehead.

"You say that food will help, and that you'll order a stimulant if I think that will help. But that there can be no delay, because we must meet with a trader for negotiations in two and a half hours of the twenty-five-hour clock." She spoke without affect, but on hearing the words spoken—and suddenly taking them in—she got jagged with anxiety. "But how can I meet with a trader?" she said. "You haven't briefed me yet. And I know nothing about trading. . . ."

Pluummuluum ordered food and water without acknowledging her questions. Azia flushed, feeling both mortified and resentful, and escaped into the hygiene facilities. The air there was thick with a visible mist of humidity. Recalling the humidity of its cabinet, she realized that the low humidity of both the shuttle and the space station must be uncomfortable for the Corollian. And then she remembered how every time they'd visited stations, her mother would regularly slather her, Seth, and herself with lotion. There was no lotion in the facility. *Of course not. Why would they provide lotion and other human amenities for a Corollian?* She would have to ask Pluummuluum to order some for her. *And mouth cleansers and all the usual items for respectable grooming.* Trembling with exhaustion as she was, the very thought of having to attend to this made her feel as though she'd been slammed with an immobilizer. And to think she'd thought the bandwidth for communicating with the juvie-detention officers was excruciatingly narrow!

9.

Azia followed Pluummuluum into the negotiation space buoyed with the confidence of having (apparently) understood its detailed briefing with ease. She held her head high and made the ceremonial bows theatrically, with a sort of private glee, feeling like a child playing dress-up with grown-ups. "I'm Egon Barraclough, Registered Trader," the clear head of the group said. "Representing Singh and Barraclough Enterprises."

"And this is Pluummuluum, Registered Trader," Azia said in a clear, steady voice (thinking that the whole scene really was like playing a part in a VRRPG). "It represents itself." *And I represent it*—she did not say.

"Trader," Trader Barraclough said respectfully, bowing again.

Pluummuluum bowed. "Trader," Azia said, to reciprocate the courtesy, happily aware that Trader Barraclough hadn't so much as glanced at her.

The negotiating space met the standard specs: it had the appropriate furniture for each species that situated them six feet apart and frontally facing. The walls and ceiling, as per specs, played silent threedys provided by each side, Barraclough's on his half of the room—directly in Azia's and Pluummuluum's lines of vision, and Pluummuluum's on its side of the room—directly in the Barraclough contingent's lines of vision. Azia knelt near (but not touching) Pluummuluum because it was the prescribed position for a translator or adviser to a negotiating party, not because it was particularly likely that Pluummuluum would want her to Receive during the negotiation (though obviously, it might). She was elated at how easy it all seemed, how assured she felt—as though she knew her part, and that it was a part, and that it wasn't really her doing business with these tough old men who'd normally eat someone like her for a midmorning snack.

The instructions Pluummuluum had given her were simple. Trader Barraclough wanted to acquire some "feathers." Azia was to offer seven in exchange for certain architectural germ stocks, and to go as high as ten, and to offer three in exchange for a sample of the fifth strain of the Jasper Virus, which Azia suspected was a neural mod for humans, and to go as high as five. And finally, she was to see if Barraclough had any "lyric crystals." If so, she was authorized to trade one for one, but not to bargain for them. The latter, it had told her, was a standing trade offer. It was always interested in acquiring lyric crystals (though not always prepared to trade "feathers" for them).

The negotiations began with Pluummuluum's holding up a feather—while images of blissful humans holding feathers tumbled gently, serenely around them—and Azia's saying, "My principal has feathers to trade."

Trader Barraclough already knew what Pluummuluum wanted, but said only, "A worthy item of commerce, Trader, but surely beyond my means." Azia felt bombarded by Barraclough's images, which flashed, morphed, and melted with such speed she could not (consciously) distinguish any of them.

Though Pluummuluum had not provided her with the exact words to use, John Shea Velikovsky had made her memorize a couple of dozen rote expressions. She said, "My principal has feathers to trade. If feathers do not interest you, Trader, then you and it both waste time in a discussion that can only be fruitless." Azia sensed Pluummuluum, behind her, moving in its seat, perhaps making a bow.

The velocity of the threedy images inhabiting Trader Barraclough's half of the room grew positively frenetic. Azia was curious about what they might be, but did not allow her eyes to stray from the Trader's everbland face. "Ah, Corollians," he said. "I've long wondered how it is that none of you can be induced to bargain! Especially for your feathers. You know the galaxy covets them, and that they are your exclusive—

shared—monopoly." He shook his head, rather unconvincingly. "If humans had the will to maintain cartels with your effectiveness . . ." He shrugged and spread his hands palm down. "It is not a matter, Trader, of your feathers not interesting me. They interest me exceedingly. But I can't imagine what I have to trade that you would find acceptable."

Azia had been listening carefully, but she was beginning to feel dizzy and nauseated—by the distraction of the Trader's images, she thought. Her mouth went dry in sudden panic as she struggled to find the appropriate response to the Trader's blather. His cold, adult eyes waited—even now avoiding her face, looking somewhere over her head, presumably at her bonder. She had asked John Shea Velikovsky, when she realized she would be expected to speak for, rather than merely translate for, Pluummuluum, how anyone could expect her to understand the words-behind-the-words of negotiation without lengthy instruction and experience. She said, "The Trader knows my principal lacks any intuition for his humor. But it is pleased that he is interested in the goods it has to trade. It wonders if the Trader, in turn, has anything it is interested in."

"That is the question, certainly," said Trader Barraclough. "In the past, the Trader has been interested in avian germ stocks and lyric crystals. I have both of these to trade."

Azia said, "These are fine goods, indeed. My principal is not interested in avian germ stocks at this time, but lyric crystals . . . if the Trader has nothing else to offer, that might be a possibility."

"Might the Trader be interested in other germ stocks, perhaps?"

Corollians, John Shea Velikovsky had told her, were reputed to be hungry for germ stocks. He did not explain why, and she had not asked him. "My principal might be interested in architectural germ stocks," she said.

"Indeed!" The Trader rubbed his hands together. As though, Azia thought cynically, the theatrical gesture could mean anything to Pluummuluum. The Trader waved his hand and named the varieties of stocks he had on hand. Pluummuluum, of course, had been informed before the meeting of exactly what these were. The naming of the items was simply the means to get to the terms of the exchange. Trader Barraclough elaborated the germ stocks' selling points at great length, before casually mentioning that he had one milliliter of the Jasper V virus, which Azia knew he knew Pluummuluum had an interest in acquiring.

"My principal," Azia said, "is interested in considering the stocks you mention as a package to be traded for as many as seven feathers."

"Seven?" Trader Barraclough said. "How could I possibly afford such a trade?"

Azia shrugged. She recalled well the stern instructions that she never, *never* offer concession after only one complaint. "Feathers, as you say, are in great demand."

"That is true, that is true. But these particular stocks—when will the

Trader run across someone wanting to trade them for feathers, of all so-expensive items?"

"Ah, but I imagine that feathers must be the easiest things to re-trade, considering how totally hot they are."

Trader Barraclough blinked, glanced at Azia with a surprised look—then quickly away, as he realized, she thought, that he had broken form. She swallowed. Of course it was *she* who had broken form, by using her own words, rather than the formulas she was supposed to apply to the situation. She cleared her nervous throat. "My principal will reluctantly agree to trade eight feathers for the stock, but eight must be the ceiling."

To Azia's surprise, Trader Barraclough accepted eight for the germ stocks, though he exacted five for the virus. Azia then flatly asked him how many lyric crystals he had and told him that Pluummuluum wanted as many as he had, but would not bargain for them. This he already knew, and allowed him the pretense of making the gracious gesture as a special courtesy to an old trading partner.

The session ended with extended ritual courtesies. The Barraclough contingent left by the door on its side of the room, and Azia and her bonder by the door on their side of the room. They walked sedately back to their suite, Azia a decorous three steps behind. But as soon as she entered the suite, a wild elation and euphoria swept over her, making her leap and dance around the room with manic, joyous energy. "We did it!" she said—meaning that she had surprised herself by actually doing what her bonder had expected. Delirious with joy, she spun and whirled around the room, circling Pluummuluum, crowing her victory, until, dizzy, she dropped to her knees before it. She looked up at its blank, alien eyes and pressed her face and breasts against its legs in an embrace that sent sexual excitement rushing over her skin, coursing through her muscles like air rushing in to fill a vacuum. It didn't matter that she knew nothing about Corollian sexuality, it didn't matter that she'd never interacted sexually with another entity, human or otherwise. Her mind was filled with images of desire for *this* being, *this* creature, filled with images of touch—of its strange limbs and tentacles touching her, of the weird slickness of its skin touching her, of its touch on the back of her neck, a touch she longed for even as she imagined it, a touch which she imagined—no, *felt*—wrenching at her bones, burrowing an ache into parts of her she'd never before recognized—was what she wanted most in the world at that moment, as she'd never wanted anything.

A sudden strike of nausea to her stomach, of cramps to her abdomen, of an indescribably unpleasant odor to her olfactory nerve shocked her somatic self. Her teeth felt as if she'd been sucking a lemon. A wave of tension set her shivering. And before Azia realized what was happening, Pluummuluum had moved away, off into the hygiene facilities, shutting the door between itself and her.

A thick, viscous wave of self-loathing rushed over her. She was disgusting, she thought. She was so disgusting. And why had she thought she was so wonderful, anyway, for carrying out her part of a ritual of trading, the terms of which had been more or less arranged beforehand? That creature wanted nothing to do with her, except to use her for speaking formulas. She might as well be a robot. Bitterly she wondered why it *hadn't* bought a robot instead of *her,* since it could communicate with processors just as easily as it could communicate telepathically with her. For a moment, she wished she *were* a robot, she wished she *were* a machine, because then she wouldn't always be making an idiot of herself, wouldn't be emotional, wouldn't mind being the loneliest being in the galaxy. But this thought, a few moments later, made her further ashamed of herself. She considered what her family would say to such disregard for Life—not to mention for the grammar of What Will Be.

Azia pressed her cheek to the ugly bare floor and wept. She knew they would say that even in circumstances like these there is always some tiny access to the grammar of What Will Be, however narrow its application might be, and that if she lived in despair and self-loathing, she would never perceive it. The insight did not comfort her, but made her feel weak, inadequate, and guilty.

10.

Pluummuluum informed Azia that its ship would be ready for departure in ten hours and that they would use the time until then for sleeping. She wasn't sure which kind of hours it meant, but she knew it was far too early in their day for her to go to sleep, and she said so. Pluummuluum simply inflated a bed and gestured her to lie on it. She looked at it; she looked at the bed; and she considered arguing, or at least pleading for some kind of amusement to pass the hours. But something about the way it was looking at her, waiting for her obedience, made the hair on her arms and the back of her neck prickle with a frisson like static electricity (which she hated, and had always seemed to be getting her on board the *Emma G.*). She felt bad, lying down on the bed in capitulation. She felt stupid and shamed. And she *knew* she couldn't sleep.

But when it reached down and touched the stubbly crown of her head with a tentacle, she *did* drop into sleep, instantly.

This time she did not wake with terrible need gnawing at her; *it* woke her itself. It was with difficulty that she emerged from a state of heavy, body-dragging sleep, her heart thudding, her eyes so thickly crusted with dried mucus they required real effort to get open, and her body sticky with sweat. Her lips were parched and bitten; her skin drawn. But all that was nothing to the squirmy, slimy sensation that felt as though it

was emanating from somewhere in her crotch, a constant creeping and crawling over her skin that she knew must have something to do with the grotesque wet-dream she'd been having. She almost couldn't bear to look at it, waiting, she thought, for her to get up and moving. She did get up, quickly—because for once she didn't want it touching her, not even to send her a telepathic burst.

It hadn't told her not to, so after she urinated, she used the shower (as though sonic scrubbing could rid her of that feeling!). As she came fully awake, she wrestled with the deep, gut feeling that if it had been able to put her to sleep like that—and she knew that it must have done so—then it could have given her that dream. She knew it didn't make sense. Even if it could give her *those* kind of dreams (which *must* be substantially different from the Reception kind, right?), it wouldn't have given her a sexual dream, considering its attitude toward her.

Which was what, exactly?

The sonic shower took no time. She slathered the lotion she had gotten it to order for her over her face, head and body, then used the gargle gel to freshen her mouth (which was as gluey as her eyes had been).

When she finished, she found her bonder waiting, standing with a carrier bag slung over its shoulder, something it gave her a pang to see. Other than the tubes of lotion and mouth freshener she had slipped into her pocket, she, of course, had nothing—but her body. If, that is, she could be said to have it at all.

11.

As Azia trailed Pluummuluum through the station, she tried to remember what the therapist had told her about the things that had been done to her and what they might mean. The neural receptor, of course, she knew accounted for her need for being in the same physical space with her bonder. But there were other receptors, too. *Like most species, humans have a variety of receptors naturally. For the most part, they don't impinge on the consciousness of the individual. For instance, human sperm tissue have twenty olfactory receptors, attuned to the scent given out by human ova. The ova draw the sperm to them with the scent. Of course, these receptors have to be in a position where they can smell the scent—namely, ejaculated into a place reasonably close to an ovum. Though the sperm tissue can be influenced by the scent of an ovum, the whole organism that generated the tissue is unaware of this influence, and is itself not subject to it. Similarly, many of the new receptors located in your tissues will be affected by scents given off by your bonder, which your conscious mind may well be unaware of. Unlike the case of the sperm tissue, the influence of this chemical relationship probably* will *influence you, and may*

well impinge on your consciousness through the physical effects olfactory reception may have on certain tissues in your body. . . . Hadn't there been something about negative and positive reinforcement? Azia was sure he'd said something about sudden, sharp physical symptoms as likely due to these receptors . . .

She really hadn't listened to him very closely. He'd been so preachy and boring, lecturing her at endless, droning length on the importance of psychological control of her body and emotions. Oh, but the dream, the shameful, exciting dream that she *could* not shake from her consciousness, permeating her body, lurking deep in her soma. Did putting her to sleep—*real* sleep—fall into the category of symptoms the shrink was talking about? Or was this a special power—like giving her dreams that were telepathic texts she read on waking—that any Corollian could use on any human with the ability to Receive?

Azia—not paying attention, simply following Pluummuluum's back—walked right into it and trod on its heels. Gasping, she sprang backward. It took its hand off the access control it was touching and looked over its shoulder at her, then turned sharply through the access that opened, into one of the long tubes that extended out from the body of the station to the hatches of docked craft. Its pace picked up, as if it were impatient to board. Azia hurried after it, fearful—even while feeling foolish at her fear—that it might disappear through the hatch and strand her behind.

Realizing, perhaps, that it could do just as well without her. And since it found her *such* a nuisance . . .

Inside, three Corollians wearing robes like theirs stood pressed close, in a row. As though at a signal Azia could not perceive, they shifted as one and clasped hands and joined tentacles. Azia stood motionless, watching. Pluummuluum moved forward and stretched its arms and tentacles so that the tips of the latter touched the tips of the only unengaged tentacles of the three, those on the outsides of the row. Then it leaned forward and extended and intertwined its tongue with each of theirs in turn—its and their tongues, long, very long, pointed and black. Azia felt her gorge rising; with difficulty, she suppressed an urge to gag and looked away—anywhere but at them. The Corollians seemed not to notice that she was there. Though it underscored her sense that she did not belong on that ship, she supposed she was glad that they didn't.

While she waited, Azia, standing barely inside the hatch, glanced curiously around. The atmosphere held so much moisture that she could see it hanging in the air, a fine, pervasive mist that soon wrapped her in a blanket of chilling damp. She realized that this must be the kind of atmosphere Corollians preferred. And this being a Corollian ship . . . Azia could not imagine ever feeling warm in such a place. The very thought of living in it struck a chill deep into her bones, making her tissues ache with it. She had never been in such an atmosphere in her life. Surely it must be

bad for the instruments, bad for the very bulkhead? All sorts of . . . *things* liked to grow in humidity. Molds. Mildews. She blinked. There *was* something growing on the walls, she saw, something that looked like mold and was glowing a weird, purple color, which she realized was probably what was giving the air that strange, thick, gloomy look, making even the brightness of the logos on their robes look dingy.

Finally the Corollians separated. Without further ado, Pluummuluum led her to a cabin adjacent to the bridge and—remaining on the bridge, itself, gestured her in. She stepped through, then shrieked with panic as she saw the door sliding closed, shutting her in—away from it. She banged on the slimy, cold ceramic-metal and yelled, over and over and over, "No! No! I'll die away from you! Let me out! Let me out!" Did it hate her? she thought desperately. Or did it really not understand her physical need for keeping close to it?

Azia yelled herself hoarse and bruised her fists pounding on the door. She stopped only when the lurch of sudden free-fall struck and she went tumbling about in a nauseating loss of control. *We're detached from the station.* Expertly she eyed the cabin, looking for a hold-bar or -strap or -net. She found a hold-net dangling from the bulkhead opposite the door. She propelled herself to it, then discovered that the bulkhead there was covered with the horridly slimy glowing purple stuff she had noticed on the bridge. It made her gag to press herself against the stuff, but since she stood a good chance of injuring herself if she didn't use something to hold her body in place for however long it took before the ship started accelerating, reluctantly she netted herself in. Every muscle in her back strained to avoid the stuff she knew was there.

Obviously no one would be coming into the cabin until after acceleration. It was pointless of her to try to get Pluummuluum's attention now. It would be less than an hour, probably, before their inertial motion got them far enough out for safe ignition. And then it would be a matter of minutes before they accelerated and got some gravity. Azia suddenly remembered how unperturbed Pluummuluum had been by the heavy G-forces of the shuttle. No, she thought bleakly, no, they wouldn't . . . and yet it was all too likely, she thought, that they would accelerate (and later decelerate) at as high a level of G-forces as they themselves found comfortable.

Her muscles rigid, her stomach heaving, Azia curled into as tight a fetal ball as was possible to an adolescent human body.

12.

Time passed, an eternity, it seemed to Azia, lacking the means of measuring it. Pluummuluum did not come any time soon after the ship had gotten under power. Though the ship's acceleration was at an uncomfort-

ably high gravity, it was lower than the shuttle's had been. She freed herself from the net, but continued to lie curled in on herself with her head on her arm so that the purple slime touched her sodden sleeve rather than her face. She wondered if she would get sick from being soaked to the skin in such a cold place. Her body certainly felt like a perfect place for viruses to be partying.

Finally, though, Pluummuluum arrived, carrying a bulb of stew steaming with heat. Her muscles felt weighted down with lead; the effort she made struggling to her knees actually threw her into a sweat. Relieved to find it hadn't abandoned her, she vented her bitterness: "Are you trying to kill me? Normal human bodies get sick without dryness and warmth. And *my* body gets even sicker from being in isolation from *you!*" She looked at it as it held out the bulb to her and tried to find something in its eyes she could reach. What she wanted was for it to acknowledge her, one being to another. But she would settle for something less, if it were some kind of real contact, instead of the nothingness she had so far gotten from it.

The hand holding the bulb moved toward her face. Azia, not understanding, flinched away from it. But then the tentacle attached to that arm flicked out and slid over the stubble of her head—giving her a quick flash of a rush—then down to her forehead: sending her one of those fast, short dreams it used for conversation.

"No!" Azia said as she snapped back, in her distress forgetting the protocol. "No! You can't *do* that to me! I *will* die if you do, it's not something I can control, it's in my brain!" As if it didn't *know* that, she thought hysterically.

Azia got another flick of the tentacle, another flash of a dream. Snapping back, she pressed her hands to her cold, slick cheeks. She said, "How do you know that for sure?" She was already unbearably cold, but the thought of going into hypothermal stasis for the trip, of having her body temperature lowered to just about freezing, made her feel like giving up and dying of sheer misery. She could see that all it cared about was keeping the ship comfortable for itself and its crew. The ship wasn't made for humans, it said. It wasn't only the problem of making the atmosphere comfortable for her. If she were in hypothermal stasis, the ship could handle greater G-forces. It claimed her neural activity would be so minimal in hypothermal stasis that the bond wouldn't matter. That she must resign herself to the fact that every time they traveled, she would have to go into hypothermal stasis. She must eat the stew and then submit to it.

This was how incompatible they were, Azia thought bleakly. What was comfortable for it was intolerable to her. Which probably meant that it was uncomfortable in circumstances she would not even notice. And yet her body craved, always, to be with it. A perverse situation, as her father would have said—meaning, someone had gone so far in the grammar of

What Will Be as to make that grammar inaccessible to another or other persons.

No wonder, then, that as she ate the thick, overly salty stew and chewed the suspiciously sweet, stringy chunks of meat until her jaws ached, her doubts about surviving hypothermal stasis grew and grew. Even if it was correct that her body wouldn't need its chemical presence, how could she be sure that it knew what it was doing, powering down her body like that? Maybe it had experience putting Corollians in hypostasis, but obviously the Corollian metabolism differed radically from human metabolism.

When she finished the stew, she said, "I've been thinking about it, and given that you have no experience putting humans in hypothermal stasis, I don't want to do it."

It took the empty bulb from her, then grasped firm hold of each of her elbows and pulled her to her feet. When it began frog-marching her to the door, she screamed and struggled in desperate panic. "No! I'll die! I don't want to die! Please! Don't do this to me!" She begged; she pleaded; she fought. But it was strong, and she was exhausted. And in the end, it simply deprived her of consciousness, as it had done earlier, when it had wanted her to sleep.

13.

The return to normal body temperature was a horror of pain and disorientation. Except for the discomfort of being shifted around, she barely noticed being put in a dry shower—until the wrapping of her entire body in a heating blanket gave her hope and comfort. It seemed as though a bottomless bulb of hot fluid was kept pressed to her lips for hours without pause. She swallowed and swallowed, and gradually became aware of her surroundings—of herself netted to a recliner in turn attached to a surface of one of those dim, purple-lit cabins, and of Pluummuluum itself, netted beside her. Among the many discomforts, she finally distinguished a full bladder. Dodging the bulb it held, she struggled through a tight, sore throat to speak. "I have to urinate," she repeated until she got a clear semblance of the words out. It showed her that the recliner had a vacuum elimination unit—a contraption she always hated to use because of the way it pulled on her urethra, but which in the circumstances was, she had to admit, convenient. Afterward, Pluummuluum gave her another bulb of hot liquid and, holding her feet in its cool, slimy hands and tentacles, gave them a delicious massage that sent the tingle of sexual excitement and the warmth of elation rippling over her. Suddenly Azia felt happy and loved, the way she had felt when she'd held the comforter, but exhilarated and excited, too, as she'd felt—so briefly and disastrous-

ly—after the negotiations. She slitted her eyes and watched it manipulating her feet, staring at the furry gray hands with two opposable thumbs, taking a good long look at exactly how the tentacles were formed, and saw that cilia on the latter—which she hadn't previously noticed—were tipped with some slimy glop similar to the stuff growing on the surfaces of the cabin, only a creamy green rather than fervid purple.

The coddling was so wonderful it made all the ugly painful memories vanish. Calmly she contemplated a life of travel in hypothermal stasis. She understood now that it was right, it was the only way she could endure travel on its ship. It wouldn't be bad, because *it* would take care of her. The way she was now, no one knew better how to take care of her body, even if it was, essentially, so entirely different from her.

14.

The negotiations at the next station they docked at were almost identical to those at the first station. Pluummuluum again offered only "feathers" to trade. Instead of the fifth strain of the Jasper Virus, it wanted the vaccine for a virus inimical to human bodies. Azia wondered just how great a cargo of "feathers" it had and why her bonder seemed so intent on acquiring lyric crystals. The one thing all the items so far traded had in common, she observed, was that they were extremely costly and took very little space.

Pluummuluum continued to make her feel good. It gave her basic access to the station's Net and said that they would be staying four days, idling, before boarding the ship and leaving the system. It made her understand that it was doing this for her, to make their travel more bearable to her.

While Azia had been in stasis her hair had grown six centimeters. She knew that meant she had been under for three months or so. (She worried about keeping a record of her time in stasis, to keep track of her biological age.) She experimented with gel to see what she could make of her hair. She played VRRPGs and swam twice a day in the station's heated pool. She avoided thinking about returning to the ship, because deep down she dreaded it.

When the time came, Pluummuluum made her insouciant. She went into the stasis tank under her own power, without a murmur. There was nothing to it, she thought—and judged her earlier resistance to it cowardice.

15.

And so unfolded the pattern of her existence: months of hypothermal stasis, followed by the slow horror of emergence softened by her bonder's

coddling, four days on a station for trading negotiations and entertainment, then back into stasis. She could not, however, bear to think of it as a pattern. Instead, she "lived in an oblivion of the moment," as her mother had taught her to call the disconnection of moments, the decontextualization of the compartments so necessary for enduring the grammar of What Is. When the recognition of a pattern crossed her mind, she banished it quickly with the thought that nothing ever went on forever, that it was only for a little while.

Until she grew up, maybe? Or until Pluummuluum's pattern of business altered? She never got so far as to pose such questions. Obviously, it couldn't go on that way. The pattern was not, after all, something one could recognize as a *life.*

After a while, she played out the repartee of negotiation more easily and even somewhat skillfully, and the negotiations all blurred into one another. She knew time passed only by the length of her hair, which she let grow without hindrance, barring occasional trims to shape and layer it. She learned a few things about her bonder and the environment it chose to maintain on its ship, enough to exemplify Meno's Paradox, which Taylor Wiggins had taught her on her sixth birthday. For instance, she began to notice that it grunted at certain times in such a way that she knew the grunt must have semiotic significance, while a specific significance eluded her. She knew that when it was passing dead time with her it preferred to sit staring at blank walls, and that it detested threedy displays and wallpaper, as well as VR entertainment, because threedy images gave it blinding headaches and distorted its vision, though she had no idea whether such a response was characteristic of Corollians or a personal weakness. Most baffling, it seemed never to look at her—or even to *see* her. Did it find her ugly? Or did it simply not perceive the gaze as an important means of communication?

Thinking about how it seldom looked at her, Azia would remember long conversations with her father, her gaze locked to his, their mutual gaze more important than anything they said. She would remember babbling to her mother about any slightest triviality that came into her head, talking on and on while her mother's gaze remained fixed on her processor's threedy display or rechecking her navigational commands, occasionally saying *hmmm-hmmm,* totally on automatic pilot with Azia's chatter, simply—infuriatingly and now, it seemed, wonderfully—*there,* inattentive to Azia's words, yet somehow still available. And she thought, now nostalgically, of how Audrey Clare would lecture her about every tiny thing one could imagine, as though Azia's learning what she knew was the very point of her existence. The only time Azia felt any real contact with her bonder was when it was massaging her feet, her ankles, her calves, or her shoulders. Something would happen then, as if by osmosis, perhaps, or so Azia fantasized, imagining that the creamy green glop her

bonder used as a massage oil was a medium of transmission, what her mother called "essential interpersonal lubrication." She never got any sense of her bonder's being really present to her when looking at (one never felt as if one were looking *into*) its eyes, but that special sense of presence came to her often from its many kinds of touches on her skin, especially the pressure it exerted on her bone, muscle, and tendons during massage. She thought—really, she *felt*—that it likewise really perceived her as she did it only when it was touching her—through her every slightest reflex and response to its touch, as though in some strange, epidermal exchange equivalent to the exchange that humans effected through the gaze.

Azia's hair had grown past her shoulders when Gerson Culley disrupted the seemingly timeless, flowingly blurred repetition of the pattern. Pluummuluum had arranged for her to be given a series of new vaccinations and boosters, including the Key vaccine, following two sets of negotiations at Astrea Station. Since the health shop it had contracted required that clients receiving the Key vaccine remain under shop supervision for four hours after administration, Azia was edgy about having it done. When awake, she rarely let her bonder out of her sight. But she could not persuade it to spend the time in the shop with her.

The medical protocol, performed by a robotic arm supervised by a medic, took less than a minute. The medic warned her that she would very shortly be feeling nauseated and later, rather fatigued, but that if she had any other symptoms, she should tell the monitor. She then left Azia lying on the treatment couch.

Idly, Azia surrounded herself with the station's human-language news menu and flicked restlessly from story to story. She never occupied herself with news menus when with Pluummuluum; but for some reason she could not name to herself, she felt a restless curiosity she thought such programming might be able to satisfy. And yet the stories she sampled left her dissatisfied. It was their packaging, she knew. She caught herself speaking aloud the sarcastic, pointed questions and comments her parents would have articulated if they had been present. She could not keep herself from consciousness of the aspects omitted, the questions not raised, about even the most trivial stories. Their framing in the grammar of What Is made her wild with frustration. *Dupes of the Feds,* she scathed silently. Though she knew, of course—for her parents had explained it—that there was no conspiracy, there was no explicit duping, there was only the unaware acceptance of the herd, from one station to another, one planet to another, across all of human space.

When Azia thought of it this way, it made her want not to be human—though it wasn't clear to her whether any other species was any different. She dwelled among Corollians, but she had no idea what kind of grammar they lived in, except that it was, apparently, nonvocal.

As Azia's body was taken over by nausea, she grew more and more vexed by the programming. Its sounds abraded her ears, its visuals assaulted her eyes and even seemed to prickle and itch against her skin. Fretfully she killed story after story. When she broke into a fierce sweat and the voices of the programming began buzzing in her ears like bad connections, she killed the display entirely. It would be better, she thought, to call up some entertainment—and she would, if she weren't so tired. The very thought of choosing something, when so much was intolerable, made the effort seem beyond her strength.

"Azia?"

She had been dozing intermittently and so heard the voice without having noticed anyone entering the cubicle. Now she jerked abruptly awake, automatically identifying the voice as the flat, nearly uninflected tone of someone raised in Federation Central. Such voices always rubbed her the wrong way. She kept her eyes shut, hoping the person would go away.

"I thought you might be interested in some company, Azia. *Human* company, for a change."

In spite of herself, Azia's eyes flew open. She glared up at the woman standing at the side of the couch. "Who are you? And how do you know who I am?" she said, suspicious of another having information about herself that she herself had not divulged—and recognizing the tension in the overly casual posture, the watchfulness of the eyes, the complacency and inflexibility of the mouth.

The threedy display behind the woman lit up with her Federation identification. *Gerson Culley,* Azia read. *Special Agent, Federation Security.* The image matched the person. "People like you don't care what people like me *want,*" Azia said. "So delete the bullshit, please." She felt in the nauseated pit of her stomach that ugly spot of cold that had been with her for most of her juvie detention. In all her new experiences of fear, she had actually forgotten what that particular kind of fear felt like. (Worse, somehow, than the fear of Pluummuluum abandoning her.) Supposedly they had finished with her when they handed her over to it. So what could they want? Could it be that they were going to tell her what they had done with her parents, or that something had . . . happened to them?

Would they even care if she knew? Of course not. They'd basically kicked her out of the human species. They'd pulled her identification. They'd bonded her to an alien. Officially, she didn't exist.

"You're so young to be so hard," the woman said softly, sighing that fake-sympathy sigh that signified only matronization.

"You mean kids as young as I am don't usually have a reaction when a machine like the one you're a cog in does monstrous things to them?"

Zap. Gerson Culley looked nettled—for a moment. Only for a moment. But Azia was good at reading adult human faces. She could *tell.* She

could see the agent carefully waiting a few seconds before answering—taking a careful, *calming* breath, to keep her *focus*. "What is monstrous," the agent said evenly, "is when people unfit to be parents corrupt their children, teaching them to be terrorists, twisting their view of reality. *That* is monstrous. Because it means that it's unlikely that such children can grow up to be full, responsible citizens of the Federation." She sighed again and shook her head. "Honey, it's tragic. But until you can understand just how skewed your perspective is, you won't be fit for citizenship."

Like she should be ready to give a course in self-correction, to point an accusing finger at her parents and call them monsters and terrorists for not wanting to live in the grammar of What Is, for not wanting to submit to this woman's grammar of What Must Be. Like she should want to *assimilate,* and forget her differences from the dominants. Like she should believe that all humans have to be what the dominants say they are, or be unfit for being citizens.

"I spit on citizenship," Azia said through her teeth. Her head was fairly swimming with anger. Unable to think about her parents or Seth, she thought about the Federation agents going through her personal belongings, about the officers who had stopped her when she was boarding the shuttle.

Gerson Culley tsk-tsked. "It's not wise to be so childish, even at your age," she said. "It could be construed very much to your detriment, you know." She folded her arms across her chest. "Even if it is a case of sour grapes. *Naturally* you think you scorn citizenship—because you can't have it. Or rather, you *think* you can't have it."

Azia rolled her eyes. *Classic mindfuck. Here comes the carrot.* Cynically, she kept quiet.

"Since during your detention on Siliconia you tested out with a respectably high complex intelligence rating, Azia, I'm assuming you can understand what I'm about to tell you." The agent leaned forward, so close that Azia could feel the heat of her breath warming her cheek. Azia fingered the tiny point of crystal she wore in her ear to carry the medical data she needed to keep physically on her person now that she no longer had an identity. She suddenly grasped that the Feds could seriously hurt her, just by abducting her and holding her a day or two.

That anyone could.

"The Federation Council has some concerns about the recent trades of your bonder, Pluummuluum." Azia's breath hissed in. All the trades *she* had negotiated had been legal—and with humans. "The record of these trades suggests a troubling, ah, profile. The trades in themselves violate no station laws or galactic treaties. But we've modeled possible trajectories for such cumulative trades, and we don't like most of them." The agent touched Azia's wrist. "And then our suspicions were exacerbated

when we learned of one of the vaccines your bonder ordered for you. There are only five sites for which the Key vaccine could possibly be necessary. And only one of them is a Federation-approved trade center."

Azia swallowed. She said, "My bonder tells me shit! It tells me only what I have to know to carry out a trade."

"We assume that," Gerson Culley said, her *we* rather brutally endowing her with the aura of Federation power.

"Anyway," Azia said, feeling threatened and resentful, "Corollians aren't Federation citizens, so they aren't under any obligation to avoid trading at stations that aren't approved." *And I'm not a Federation citizen, either.*

"We realize you can't tell us what your bonder's plans are, but there are other ways you could help us. Namely, in seeing if you can learn which one of those worlds or stations you need the vaccine for, and later, if you do go to that place, the real story on exactly what trades your bonder makes."

"You want me to spy for you," Azia said coldly. "When my very life depends on staying cool with my bonder. How typical of the machine to want me to stake my life for it, when it's just a monster that exists by eating up people's will and liberty."

Gerson Culley sighed. "Azia, you are warped. The Federation is the only guarantor for freedom in the universe and the only safeguard against our species' devolving into dozens of subhuman races."

Azia said nothing.

"If you help the Federation, the Federation will help you. Not only will we confer citizenship on you, but we'll remove the receptors bonding you to the Corollian."

Azia snorted.

"You're being given a second chance, Azia. A second chance to live among humans. By now you should know you can't have any decent kind of life living with *aliens*. You can't afford to blow it."

Azia blazed with rage. "A *second* chance? I never had even a *first* chance!"

"Your parents blew your first chance," the agent said quietly. "Which is something you'll have to come to terms with if you want full citizenship."

"What I want is for you to leave me alone!"

The agent straightened. "I don't think so." The threedy display behind her suddenly showed an image of Azia with John Shea Velikovsky and Pluummuluum. Azia was slumped on her knees, rocking herself back and forth, crying "Mommy, Mommy, I want Mommy."

Azia squeezed her eyes closed and pressed her hands over her ears. "You jerk," she said loudly, trying to drown out the sound from the display. "You slimy scummy disgusting piece of vermin! You shithead, you

virus, you puddle of diarrheic excrement!" On she went, venting and venting the rage that had been boiling inside her since the family's bust. When she finished, exhausted and shaking, and heard no sound coming through her hands, she lowered them and opened her eyes to find the agent seated cross-legged on the floor, watching her.

The agent rose to her feet. "I can understand your outburst. Unlike your bonder. It's a human kind of thing. Think about my offer. Think about what your life will be like if you don't accept it. I know, I know, you're more into self-destruction at the moment than being open to taking hold of your life and turning it around. But think about it in your more rational moments. In any case, we'll be in touch."

The agent was out the door before Azia could speak. She felt sick. Because of the vaccines, she knew. But she also felt that hollowed-out kind of sickness that made her shake and shiver all over. *Don't confuse humane with those who claim to speak for all humans,* her mother had often said. *The two are polar opposites.*

Yeah.

16.

The pattern resumed, but with a difference. Before Azia's conversation with Gerson Culley, time stretched endlessly before her, in the way of childhood, and she had been waiting, in a sense, for "real" life, for adulthood, for "reality," to happen. Now, though, she was waiting for something specific, for some unknown thing she had only clues to, but which she felt as clearly real; and she realized that she was already in the adult world, that she was already playing a real role in real events. Pluummuluum meant those events to go one way, Gerson Culley (and the Federation Council) another. And from being empty and dead, from something to be waited out, time had become an arena for finding out just what both sides in the struggle intended.

She thought about what the agent had offered and how questionable it was that she could be trusted, given the arrogant lack of honesty Federation people felt their duties entitled them to practice in achieving their ends, given their assurance that Federation actions were always justified by their ends, and their assumption that their ends were always Moral and Good, simply because they were *their* ends. Sure, Azia would like to be freed from the bond. She could not deny it. But what then? The agent had mentioned nothing more specific than "citizenship"—which, as things stood, would leave her homeless and without the means of feeding and sheltering herself. The agent hadn't offered to restore the property that had been taken from her parents, much less to free her parents or give her a tenable place in life to occupy. Utterly vulnerable, she would

be prey to being forced into another bond—with a human, yes, but of a character no doubt more degrading than the one she had, or forced into an inescapable trap of the unending drudgery always there to suck up the desperate.

The more she thought about the agent's offer, the less point she could find in it. If she were to deal with the Federation, it would have to be for better terms than those she had been offered.

But there were other considerations for her to take into account, for she was, she kept realizing (as she had never done before all of them had been busted), her parents' daughter. True, instinct told her she must be Gerson Culley's enemy, because Gerson Culley spoke in the grammar of What Must Be. And yet, the grammar of What Is, which was what her bond with Pluummuluum had forced on her, was so repellent that she also felt the impulse to spite her bonder simply to spite that enforcement. Her daughter's sense, however, told her that in consciously making the choice to play a particular role, she would be speaking in the grammar of What Will Be—unless, of course, her choice was made inauthentically, complicit with a self-deception that sought only to do what was safest and most comfortable in the immediate moment (if not in the future).

When she woke from her next stint in hypothermal stasis, she used her voice to speak to Pluummuluum (as she mostly, at such times, did not). It was massaging her feet in that wonderful way that its tentacles and four opposable thumbs made possible, and wrapped in the heating blanket with her eyes closed and a bulb of hot liquid in her hands, she was feeling something, some wordless communication intimating a bond beyond that of chemical reception (as if it were possible to separate the chemical reception from everything else!). At such times her mind seemed to float, without any thought more complex than recognition of her well-being—of having survived stasis, of being tended, of warmth seeping into her bones, driving out even the memory of cold. And yet *this* time, a distinct thought rose to the surface of her mind, compelling her curiosity and speculation. The thought mingled so successfully with her perception of sensual comfort that it seemed quite natural to expect that it could be voiced explicitly to her bonder, who was the main source of the sensual comfort, as though in such a moment of intimacy there could be no barrier of caution, risk, or mistrust between them. "So," she said aloud, "did you trade some of those crystals and germ stocks you've been accumulating to non-humans while I was in stasis?" Being the daughter of traders, she knew that the main reason for holding onto one particular item of trade instead of turning around and trading it away at the first opportunity was a strategy of building up a stock to trade for an item of far greater value. What puzzled her—and what had likely raised the Federation Council's suspicions—was that Pluummuluum apparently had an unusually large stock of the "feathers." Her bonder's trading practices

could be made sense of only as some grand strategy it was following—or if it were making trades while she was in stasis, or if its crew members or some other agent were making trades that she didn't know about.

Usually it ignored her questions, unless they involved instructions for negotiating trade. But now it sent her a dream like none it had ever given her. In this dream, she was split into two—into the watching consciousness, her typical location in such dreams, and into a figure whose consciousness she shared, who she knew was herself, with chin-length hair, wearing the robe marked with her bonder's logo. The dream began with this figure of herself standing alone in a passage that reminded her a little of the living quarters of her family's ship. The doors were a pale gray, solid in their upper halves, but printed with designs in dull red over their lower halves. As the figure looked at the doors, it knew that the upper halves were printed with a design, too, but in a color that her eyes lacked the appropriate light cones for perceiving. Corollian eyes could see that color, but to humans it looked, simply, pale gray.

This insight shocked the Azia who watched, not for itself, but because the figure of herself that she was watching knew this before her watching self did, though in these dreams her watching self always simply knew and understood everything that she was seeing. The figure went from door to door, touching the surface of each with her palm, and with each touch acquired an impression of what lay on the other side. Beyond the first door sat Gerson Culley, John Shea Velikovsky, and the horrid woman who had been seated facing Azia on the Siliconia shuttle. Beyond the second door lay the cabin her physical self now occupied—the recliner empty, Pluummuluum seated on a stool beside it. Beyond the third door lay an empty room lined on all six sides with mirrors. And beyond the fourth door lay dark vacuum and bright, distant stars.

The figure dismissed the fourth door. It knew it could not survive the vacuum beyond it, nor reach, alone, the stars. It glanced, briefly, at the first door. Azia's watching self thought: *They represent the Federation—or else humans—or human dominance—as a whole.* And then took another hit of shock, as she realized she was seeing Gerson Culley in a dream sent to her by her bonder. The figure wavered between the third and second doors. What good could a room of mirrors be? it queried. But what good could going into a room representing her current physical situation do? Perhaps, it thought, there was something beyond the mirrors, in the way there was something beyond the four doors. . . .

As soon as the figure decided on the third door, it slid open. The figure walked in, slowly, hesitantly, almost with its eyes closed. Azia saw at once that the images in the mirrors were not literal reflections of the figure. Instead, a set of images—repeated on the surface of each of the six sides of the room—greeted the figure, leaning forward, looking as though they might break through the barrier of the glass, so eager were they to

embrace it. "Azia, Azia, Azia!" they sang out—Azia's parents, tiny Seth, Audrey Clare and Taylor Wiggins. The figure rushed at the mirror opposite and pressed its body against it—as though hoping it, like the doors in the passageway, would grant access. But the mirror remained hard glass, cold in its clear solidity.

Azia's watching self felt torn between longing for her family and distrust at their appearance in a dream sent by her bonder. It was an intrusion, she thought. But she was so hungry for the only people who had ever loved her, so needy of contact with them, and the figure of herself felt only the hunger, the need, the longing. Their presence—even as images in a mirror—delighted even as it frustrated the figure. It cried, "Mom! Dad! Taylor! Audrey! Little sweet Seth!"

Seth chortled and waved his chubby little fingers at the end of his long, thin arm. "Aza!" he screeched. "Aza!"

It was more than the watching Azia could bear. Though she had no physical self, she experienced the sensation of weeping—a weeping that did not cause her vision to blur. And the figure of herself *did* weep. And choke out, "What am I going to do? I'm in such a mess! What *should* I do? I don't even know what the *right* thing is!"

"What should you *do?*" all the adults said in unison. "What should you *do!!!*" The image of Azia's mother said: "What you should *do*, baby, is whatever you *have* to do to keep body and soul together! *That's* what you should *do!*"

"Precisely!" Audrey Clare said.

"Listen to your mother, girl," Azia's father said.

"She's speaking the truth!" Taylor Wiggins said.

"I miss you," the figure whispered from a bottomless well of misery. "I miss you so much. And you're all . . . gone. For good." Azia's watching consciousness thought how she never would have guessed how much she would miss her family. For the last couple of years all she had been able to think about was how much she wanted to live with different kind of people, people who weren't always worrying about what kind of grammar they were living in.

"You're seeing us because you're looking in a mirror," Azia's father said. "And the reason for that is that we're inside you. What you have to do is feel and remember that, even as you miss us. You can see that we are, can't you? I know you can, or you wouldn't be able to see us at all now."

Azia's watching consciousness thought furiously about how this conversation was a dream that Pluummuluum was sending her.

"You say I should try to keep body and soul together," the figure said. "But I don't even know what the best way to do that is. Is it staying with Pluummuluum? And not going along with the Feds? The Feds could just take me, and then I'd be dead meat. And how do I know what Pluummu-

luum is going to do with me when it's finished using me? But if I betray Pluummuluum, how can I know it won't abandon me, to let me die? Or that the Feds will keep their promise? You see the problem? I'm a tool to both sides. I can't trust either. I mean, if I'm going to be risking my life in any case, I should at least try to do what's right." The figure was whining and wailing so pathetically that the watching Azia cringed with shame.

"Oh, Azia," Audrey Clare said. She shook her head. "You're confusing the results of an action with its motivations. You're wondering what consequences your action will have and are trying to decide your ethical position according to what you think they might be. Instead, you need to ask yourself some questions. First, can moral good exist in a vacuum, outside a community of persons? Or, more abstractly, is an ethical determination identical with its moral consequences?"

The watching Azia felt a lurch of nausea. *You can't assess moral meaning in a void. Moral judgment is not an act of solipsism, but of community. An individual without a community is at the edge of survival. The only moral meaning in such a situation is just that: survival.* All those discussions had been like hypothetical lessons for discussing other people's failures. And now here *she* was—one of those persons who always sounded too fucking pathetic to believe. Or the other kinds of discussions—the sickening ones about how communities justified to themselves the atrocities they committed against those they excluded: which was why "human rights" had always been such an embattled issue for centuries, since the one thing most communities tended to agree on was that the totality of human beings did not make up one whole community, since never had any human community counted all human beings among its members.

"Second," Audrey Clare said, "Identify your community."

The figure swallowed hard. "You know I don't have a community," it said, fighting off tears. "*You* were my *real* community. Or, at least, my way into a community. I guess all those other independents like us—dispersed all over the galaxy—could have been my community, if we hadn't been busted. I was too young to really be a member of it on my own. . . . While the Feds—they took my identity away when they busted us. Those people beyond that other door—none of them consider me part of *their* community. And the Corollians—to them I'm merely an alien of temporary use."

"The Feds did just get tired of us, I guess," Taylor Wiggins said. "They planted contraband material on the ship when they searched it. Belonging is rather flexible with them, it's true, though that doesn't stop them from interfering with individuals and whole species who'd rather keep their distance . . ."

The watching Azia realized that Pluummuluum must know more

about her than she'd imagined. (But in fact she'd come to assume that it had no interest in her background, much less knowledge of it.)

"Have you come to any conclusions, Azia?" Audrey Clare said.

The figure crossed its arms tightly over its chest. "Nothing I decide can have any moral meaning—in advance, at least." The figure's tone was flat and hopeless. "Since my decision is being made in a void."

"This is no exercise in glory, baby," Azia's mother said.

The watching Azia felt utterly deflated.

"So the question is, what is the best thing for your survival? Or, to rephrase that, what is the best you can do for any future self, given the requirements of survival?"

The watching Azia understood: even if the exigencies of survival determined her moves, she wanted to avoid doing anything that she would find hard to live with later. *That* being a matter of *ethics.*

The figure of Azia lingered with the family, but finally, resolutely, withdrew to try the other room, to see what kind of answers might be gotten from Pluummuluum. It waited for her beside the recliner, which the figure, already shivering in the chill of the Corollian cabin, now stretched out in. "Of course one of the important questions is, what *is* survival?" the figure muttered half under its breath. "Is it this twilight existence I have, going continually in and out of stasis? And what if a lot of other people's lives are at stake?"

As if anyone, the watching Azia thought, could be trusted to tell her the truth of that. The Feds would say whatever they thought would convince her to work for them. And Pluummuluum. . . . It could say, simply, that this scene was a matter of trade, and nothing to do with lives—at least not directly. . . .

The watching Azia watched the figure of herself yield—simply, totally—to the pleasure of the bonder's touch. Glowing green glop gushed out of the tips of the tentacles, stimulating delightful sensations wherever it touched the figure's skin. The watching Azia felt these sensations intensely—while growing more detached from the figure than she had been in the space of the mirrors. Her vision seemed to get sharper, the green of the glop brighter, as the pleasure spread over areas of the skin Pluummuluum never in ordinary reality touched, until every millimeter of skin was inhaling the bonder's scent and singing ecstatic sensation. Though the cabin was damp and cold, the body heat of the figure blossomed so profusely that the figure threw off the blanket entirely, revealing naked skin glowing with green where the hands and tentacles had touched and spectrally transparent where it had not. To the eyes of the watching Azia, the green-glowing skin shimmered with beauty, strong and vibrant and solid, and the figure of Pluummuluum leaning over the body—also suddenly naked—glowed just as vibrantly green in exactly the same parts of its body as Azia's figure did, its skin singing,

too, its voice merging and counterpointing the other's song in a deep, lyrical humming, low and throbbing with some kind of emotion or message that Azia could not make out but that she felt as powerful and positive. They were speaking, it and she, the language of skin, speaking the grammar of union with the syntax of give-and-take. *This is who I am,* Azia's watching self thought. *This is who the bond makes me, what my self is becoming.*

All thought faded as more and more of the glop spread over the figure's skin. When finally the entire body was—like Pluummuluum's—vivid and humming, the bonder's fingers, suckers and tentacle tips slipped and slid in the cracks and crevices of the figure's genitals and anus until the glop was oozing inside, past cervix and sphincter, high up into the body, spreading pleasure everywhere it went, out and out and out from the orgasm now pulsing and rippling in waves of sensation away from its epicenter.

Abruptly, as happens in dreams, the watching Azia was looking at a world on the viewscreen of the *Emma G.,* a world surrounded by official Federation starships, freighters, and cruisers. Before getting even the first glimpse of the world, she discovered that she knew the world was one that had been resisting trade with the Federation, a world inhabited by sentient creatures barely visible to the naked eye, creatures who had built eerily strange, almost ethereal structures on the archipelagos dotting the great ocean covering the world. Trading corporations wanted some of those structures for research and even to sell as art objects, and wanted, also, the valuable minerals in its ocean. The Corollians had been trading with these creatures for centuries. They claimed any Federation presence on the world would destroy the species and were determined to interdict it. Pluummuluum's particular task was to acquire a highly controlled virus designed to eat the ceramic metals all human spacecraft were made of.

On screen, the view of the world was magnified until an entire island became visible. Azia's breath caught in her throat; against a deep green scintillating ocean glittered delicate rose, purple, and gray spires and spirals, about which fluttered and swooped and soared creatures with wings variously green, red, and orange, VR-like in the intense brilliance of their colors. The view zoomed out—this time revealing an enormous tan monolith that towered menacingly over the island. A threedy image of the familiar gold Federation logo hovered above its roof, sickening in its nonchalance, outrageous in its matter-of-factness.

Azia woke in tears. She knew she was being emotional, she knew she was being irrational, but she woke determined to do all she could to fight the Federation. She felt Pluummuluum's hand on her face, clammy, chill, and slippery, brushing away her tears. It had told her a story that she couldn't verify, but she believed it in her body, in her soul. She had no

community now, it was true. But helping save another one from being destroyed by the same enemy that had destroyed hers would go some way to making her feel less alone in the universe.

17.

Loaded with Federation troops and security officers and heavily monitored, the station orbiting the Federation world called Rosario spooked Azia as soon as she set foot on it. Pluummuluum had warned her to take care with every word she spoke, no matter her location. Her awareness of having ventured into the lion's den to work the final deal made her nerves jumpy, her mouth dry, her palms perpetually sweaty. This station's light seemed harsh and cold, a virtual glare of intimidation and suspicion determined to eradicate individual thought and private feeling.

Pluummuluum had not taken quarters because they would not be making a layover beyond the minimum required for refueling and maintenance. The trading party they were meeting, all officials from Rosario, awaited their arrival. Everything had been arranged long before, contingent on Pluummuluum's securing the items the Rosarians so desperately needed and could not afford. While most negotiations were slightly more than a formality, these were meant simply as cover, for thwarting the Federation.

Azia took a big chill in the corridor outside the negotiation space when Gerson Culley and a companion—no doubt another agent—openly confronted them. "Azia," she said, "I'd like a word with you."

Azia's shivering tensed and shook every muscle in her body. Her mouth went so dry she had trouble making her tongue form words. "I have duties right now," she said. "I-I, maybe, if my bonder permits it, after we've finished inside?" She glanced sidelong at Pluummuluum, hoping she appeared anxious for its approval rather than for securing its protection.

It laid a hand on her shoulder in a touch that sent spirals of sensation down her back and into her belly.

"I think you need my help, Azia," Gerson Culley said.

In spite of her bonder's touch, Azia felt sick. Gerson Culley could take her away from Pluummuluum and put her in hell. Gerson Culley's eyes, ignoring Pluummuluum, staring icily into Azia's, said that she knew it.

A contingent of humans accompanied by a pair of uniformed station police rapidly approached. It was unusual for two trading parties to acknowledge one another outside the formal space, but the contingent paused before going to the door to its side of the space, and one of the men said, "Trader Pluummuluum?"

Pluummuluum bowed, and Azia said, "Yes, sir."

The man bowed, too. "I assume there is no problem here?" He glanced pointedly at the agents.

Azia carefully avoided Gerson Culley's gaze. "We are ready to enter, sir."

Each party entered by the door assigned it. Before they took their places, Azia whispered into her bonder's ear, "When we leave here, please don't let them separate us. Please!"

To her surprise, it pressed its comforter into her palm. Bowing to the other party and then kneeling beside Pluummuluum, she felt not only calm, but bursting with warmth and confidence. She would do her part, and it would take care of her. The Federation could do nothing to separate them. If they wanted to question her, they would have to do so in its presence.

Of course, they might do something lowdown like planting contraband on her body, as they had planted it on the *Emma G.* She knew that. But she wouldn't let fear of their doing so stop her.

The Rosarian delegation was made up of two men and a woman, sharply corporate looking, and members of the world's governing council. The negotiations were bogus. Pluummuluum had been acquiring lyric crystals precisely because they were among the items the Rosarians wanted in exchange for the cermetophage. But in order to play along with Pluummuluum's usual protocol, the Rosarians negotiated the exchange of two lyric crystals for all the germ stocks the Corollians had collected. Azia concentrated on the "feather" in her palm, hoping it would keep her mind blank and her face straight. She assumed the agents would be recording not only their speech, but their physiological responses; she needed hers to be routine and unremarkable, to lull the agents into thinking that this station—though it was the one she had been specially vaccinated for—was not the site of the end trade.

"The germ stocks specified are satisfactory," the head of the Rosarian delegation said. "The physical exchange can be arranged to take place within the hour."

The primary physical transfer, Azia knew, would take place elsewhere. Pluummuluum, of course, hadn't told her where, since what she did not know she could not tell.

As they left the space, Pluummuluum gripped her elbow and pulled her close. They moved at a fast clip, needlessly, of course, since Gerson Culley could put the arm on them at any time. Azia thought of how the Rosarian delegation all looked like Federation officers themselves. They might once have been—or even still be—officials employed by the Federation. Rosario was a maintenance and disposal depot for more than half the Federation's fleet. They possessed the cermetophage because all the space garbage, spent technology, and obsolete weapons the Federation and its worlds generated got dumped on Rosario. The people on Rosario

felt exploited; the size of their population had grown sufficiently that they were interested in making a viable world culture of their own. The Federation, however, was doing its best to discourage this, since a viable economy would threaten its monopoly on jobs and provision of goods and services, and could eventually lead to challenges of the Federation's right to use it as a dumping ground.

That was the story behind the Rosarians being willing to deal illegally. It sounded good and matched what little Azia knew of the recent history of internal Rosarian politics. But could they trust the Rosarians not to double-cross them? If the Rosarians could pull off the trade without Federation interference, they surely could be tricky enough to cheat the Corollians. Although . . . it did seem to Azia that Pluummuluum could . . . take thoughts from her mind. (It had to have done, given the content of the dream it had given her.) Could it do so without touching? Or while suffering the headache and visual distortions caused by the threedy? If it could, it would know, surely, whether the Rosarians had negotiated in good faith.

When they accessed the tube leading to the hatch of their ship, they found a station security search in progress. Gerson Culley met them at the hatch and prevented their boarding. Azia still held the comforter. She remained calm as she recalled the search of the *Emma G.*

A woman wearing the uniform of the station's security force joined them. She looked at Pluummuluum. "Major Haberkamp, sir. My apologies for the inconvenience. Federation Security asked that your ship be searched. As you know, this is a sensitive site for the Federation, requiring more stringent attention to security than most stations do. I'm afraid we have no choice but to agree to FS's request." She gestured at the hatch. "You have my personal assurance that it will be as neatly and discreetly conducted as possible."

Pluummuluum bowed, then lightly touched Azia's forehead. Azia said, "My principal thanks you for your courtesy, ma'am." It had also suggested to her that Haberkamp was present to protect them from a setup, probably at the Rosarian delegation's request.

"I must ask that you both submit to bioscans," Gerson Culley, who had in no way acknowledged Haberkamp's statement, said sharply.

The agent's eyes narrowed when Azia regretfully gave up the comforter. "Is that what makes living with mold tolerable?" she said, sneering. "After seeing this ship, I can't imagine how you could believe you want such a life."

Azia said nothing. She thought about the kind of life Gerson Culley must lead and wondered how she could stand the homeless existence of a mobile agent attached to—at most—one human being. Someone chasing suspects from station to station surely could not have a family of any sort. The power and clichés of the Federation apparently made up for the

desolation of such a life, so much so that she believed the abstraction of "citizenship" could tempt Azia. Azia wondered how that kind of abstraction could tempt anyone. The strange intimacy she shared with her bonder, while not her choice, touched her body and soul, and in fact kept them together, as Pluummuluum's version of her mother had urged. It understood enough of herself and her family to enable them to speak together in a dream. And it was right, she absolutely *knew*, keeping body and soul together was everything, even if it meant alienation from her own species.

18.

While their ship was being searched, the transfer was made in orbit around a gas giant in the system where radio transmission was poor. The Corollians had put a small fast ship into orbit there days before Pluummuluum's ship arrived. Once the Rosarians knew the deal was set, they sent a cruiser to hand over the cermetophage and collect the lyric crystals, vaccines, and various strains of viruses that, in addition to the germ stocks delivered directly at the station, made up their side of the exchange. The ship carrying the cermetophage reached jump point just as Azia was entering hypothermal stasis. She would wake, Pluummuluum had informed her, in Corollian space.

Waking in Corollian space, in a place more alien than she could imagine. . . . The thought made her anxious, though not frantic. It would be difficult. But she had the beginnings of trust—trust of Pluummuluum, trust of herself. And she was curious, young, and strong. And most importantly, she was living, now, in the grammar of her choice—not her family's, perhaps, but surely her own.

Humans never remember their dreams in hypothermal stasis, though it is known that at such times their neurons do occasionally fire. Though Azia's dreams cannot be known, they might be easily guessed—of times past on the *Emma G.*, of times to come on her bonder's home world, of brilliant-winged creatures soaring over a world of oceans punctuated with delicate spires and spirals, of glittering green glop and its teeming, teasing pleasures. Azia may even have dreamed of meeting again with her virtual family in the space of one of her bonder's dreams, telling them *I'm going elsewhere, now, to a place that's totally unknown, living in a grammar you never taught me much less gave me a name for. I choose it, yes—I choose life with the alien, I choose to live in strange new grammars. I choose life with feathers and dreams.* ●

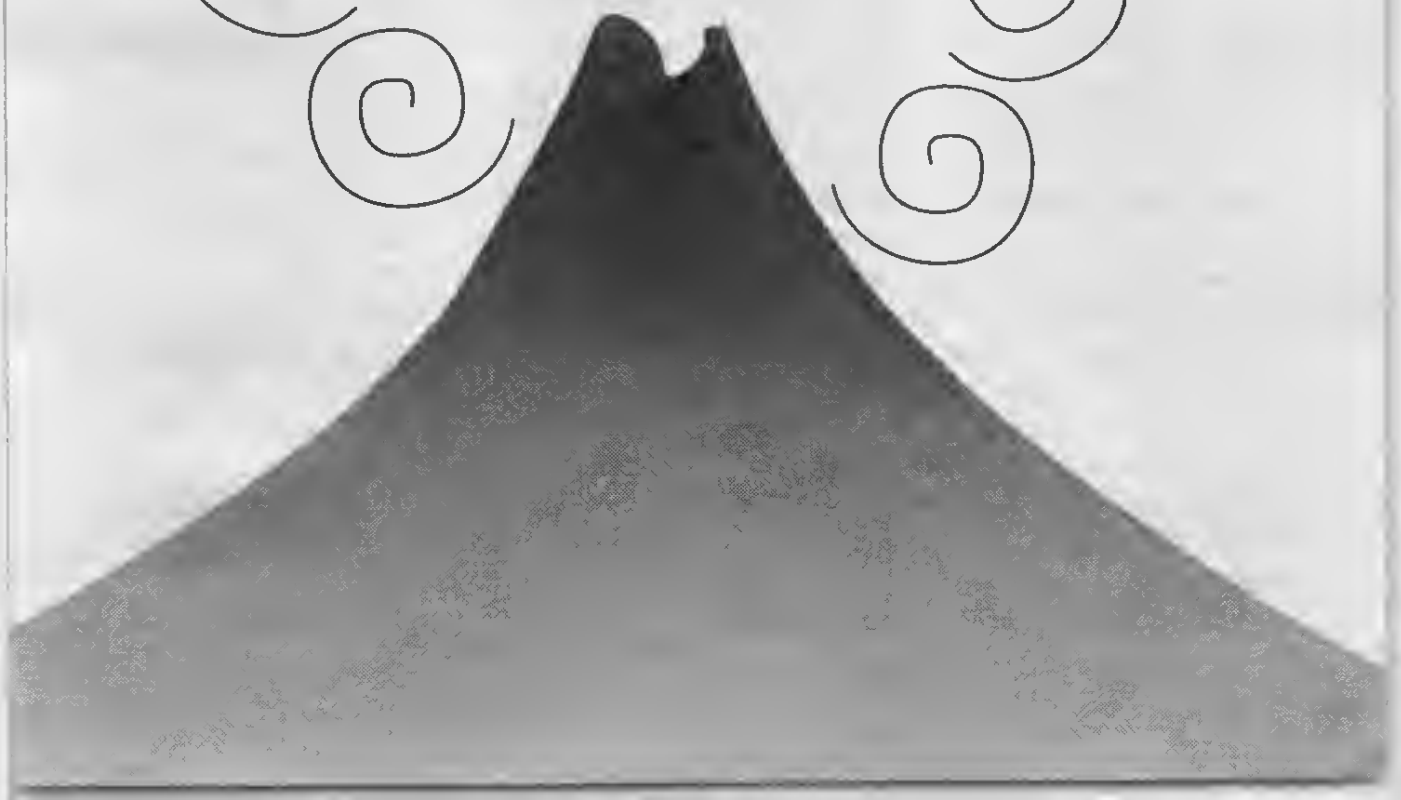
One Minuscule Grain of Fact Grows the Giant Crystalline Entity of Conjecture

—or—

Greenhouse Effect: Wisconsin

Little tiny snowflake
Falling from the sky
Drops some Pinatubo
In my eye
A bit of Mount St. Helen's
Lands in the well
Condensation particles
All over hell

—Kandis Elliot



ON BOOKS

Peter Heck

SLIPPAGE

by Harlan Ellison
Houghton Mifflin, $22.00 (hc)

Some writers (Thomas Pynchon comes to mind) dodge the public eye, content to let their writing speak for itself. In our own field, very few readers had ever seen even a photo of Jack Vance or Andre Norton until just a few years ago. But many writers clearly enjoy being public figures, and actively court publicity and controversy. Mark Twain is an obvious example, or in our field Harlan Ellison. As anyone knows who has seen him on talk shows, or on the convention and lecture circuits, Ellison is always on stage, and he's always *on*.

But publicity has its downside: The risk that readers will pay more attention to the public persona than to the printed page. When Ellison writes a story in a bookstore window in front of an audience, or asks someone like Robin Williams to supply a theme on the spur of the moment, a literary purist may dismiss the resulting work as a publicity stunt, without ever reading it on its own terms. That would be a mistake, but even people who ought to know better have fallen prey to that temptation.

Ellison has also managed (very deliberately) to avoid being pigeonholed in any single publishing category. He's written SF, fantasy, mystery, and horror well enough to win awards in all four fields. And that's just the fiction: he's equally adept at screenwriting, reviews, journalism, and almost anything else that a verbal quick-draw artist can convince an editor to pay him for.

So what to say about a new collection of Ellison's work, spanning roughly the last decade? Well, to begin with, everything here is unmistakably *Harlan*—always in your face, and never content to give you anything you can read without some strong reaction. Even the titles are characteristic: "Anywhere But Here, With Anyone But You," or "The Pale Silver Dollar of the Moon Pays Its Way and Makes Change" are over-the-top incitements in the same spirit as "The Beast that Shouted Love at the Heart of the World." Likewise, the format of the printed page calls attention to itself, with attention-grabbing layouts and typographical treatments (notably, the occasional snippets of what seem like autobiographical episodes, printed in white-on-black, between stories, or the "broken" first lines of each story).

The beginnings of Ellison's sto-

ries are typically highly provocative, as well. Often an enigmatic single word or a sentence fragment is the first thing to greet a reader; other times, Ellison nails us with a short, sentence—"Yes, they died," or "It was a time of miracles."—designed to frontload the story with powerful emotion. Grabbing the reader right at the outset has always been one of his strongest suits. Everything aims at producing the maximum impact on initial encounter.

This, along with the author's provocative introductions, makes reading a new collection of his stories like going to hear a heavy metal band: whether or not you enjoy what's happening, it's impossible not to have a strong response to it. The intense affection Ellison's admirers bring to his work is undoubtedly in part a response to this emotional supercharging.

But the test of the stories is, finally, how well they deliver what they promise: what's inside the package. In this case, the contents are uniformly first-rate, even while remarkably varied in form, tone, and subject matter. "The Man Who Rowed Christopher Columbus Ashore," which opens the collection, presents a series of short vignettes (one for each day of the month of October) about a character who goes about the world stirring things up in ways that range from the profound to the trivial, from the whimsical to the terrifying. The reader is left to discover what pattern, if any, unites his acts.

"Mefisto in Onyx," an award-winning story, is more conventional in format. Told from the perspective of a black man with the ability to get inside the minds of others, it takes the reader to the cell (and into the interior landscape) of a serial killer awaiting execution. The reader is forced into a searing confrontation with the most savage undercurrents of the human soul; if Ellison were not so good at so many different things, one would be tempted to say that this is a fair example of the core of his art.

"Keyboard" is the story built around a challenge from Robin Williams. In it, inanimate things begin to take on lives of their own—juxtaposed with a background of mundane contemporary suburban life. Ellison builds the story out of a series of little things that grow inexorably in significance; while overtly less spectacular than some of the others here, the story is every bit as accomplished technically, the more so because it works so quietly and subtly.

And there's more. "The Lingering Scent of Woodsmoke" is that most difficult of forms, the short-short. In something like eight hundred words, Ellison manages to wring a surprise out of the (at first) apparently stock situation of a surviving Nazi finally brought to justice. "Anywhere But Here . . ." takes a harrowing real-life situation, cranks up the alienation and tension a couple of extra notches, and then breaks out the other side

of it into liberation. And, of course, there are still other stories, each an intense experience in its own right. That's what you pay for with Ellison, and that's what you get here.

Ellison has been an *enfant terrible* for longer than most writers can sustain a career, and it must sometimes seem as if he would run out of ways to jangle the readers' nerves. But while his esthetic may have remained within a particular set of bounds—hardly a narrow one, but an identifiable one—his craft has only deepened. Anyone who has felt his particular magic in the past will find that he is just as good as ever. And anyone who is still unfamiliar with his work—well, here's as good a sample of it as you're likely to find.

THE ART OF ARROW CUTTING

by Stephen Dedman
Tor, $22.95 (hc)

Here's an appealing first novel, in what might be called a Neal Stephenson vein, by an Australian writer whose short stories in this magazine and elsewhere have whetted readers' appetites.

Dedman's debut novel, in form and structure a contemporary thriller, is set in a world where the supernatural beings of Japanese mythology are alive and well. This gives the book an exotic air, heightened by Dedman's outsider view of the US and Canada, where the action takes place. (There is the occasional "huh?" where the author's experience of his milieu doesn't jibe with that of a native, or where he uses an Australian idiom that means something else in these parts—e.g. "baggies" for plastic garbage bags—but for the most part, he manages to avoid the sort of howler Ian Fleming so frequently perpetrated when he wrote about some part of the world he did not know as well as he thought.)

We start off with a short surrealistic scene that sets the tone for much of what follows: a Japanese businessmen meeting his boss in the boss's sauna. From their conversation, the reader learns that a woman has stolen something of great value, and that Tamenaga, the boss, is ready to take whatever measures are necessary to recover it. At the same time, the boss's tattoos—which to an alert reader identify him as a highly placed mob boss—begin to come disconcertingly *alive*.

The next chapter jumps abruptly to the Greyhound station of Totem Rock, a small Canadian town, where a young drifter and freelance photographer named Michelangelo Magistrale (AKA "Mage") encounters a beautiful woman. She hits him up for bus fare to Calgary, giving him the key to her rented room as a sort of collateral. Easy-going Mage doesn't really expect to see his money again, but promises to look her up in Calgary in a few days. This simple exchange sets all the plot wheels in motion.

In short order, Mage finds himself being pursued by the *yakuza*—the Japanese underworld—which reveals its power by sending a

frightening monster to attack him. The law is also after him; he's suddenly the major suspect in a murder, and the only way to save himself is to find out who really did it. He has his suspicions, but proving them will be a tough proposition. And while he discovers unexpected powers of his own, it takes a long while for him to understand their true nature—or how to make effective use of them. At the climactic scene, we find ourselves face to face with powers not of this earth—though they are clearly concerned with it.

Dedman brings this all off with considerable wit and style, playing with the conventions of the thriller without entirely giving in to them. The publisher's description of the book as "a novel of magical noir suspense" is, for once, a fairly accurate indication of the contents. The tone moves with very few false steps from vivid horror reminiscent of Clive Barker to cartoonish action sequences to nicely observed slices of contemporary American life. It would be very pleasant if this well-written first novel were the prelude to many more.

ASSASSIN'S QUEST
by Robin Hobb
Bantam Spectra, $22.95 (hc)

This winds up the pseudonymous Hobb's well-received "Assassin" trilogy, the first two installments of which were reviewed in this column some time back. To cut directly to the chase, the conclusion is worthy of the beginning. Readers who haven't caught up with the first two volumes should skip the rest of this review and go find *Assassin's Apprentice* and *Royal Assassin*, both from the same publisher. While Hobb does as good a job as anyone could at patching in the requisite background, the fact remains that a trilogy is a three-book project. Reading the end without the beginning and middle is about as useful as trying to judge the merits of a symphony by listening only to the finale and judging it as if it were a self-contained composition.

Those who've read the previous books will recall that Hobb's protagonist Fitz, the royal bastard trained as an assassin, has barely survived the crisis with which the second volume ended. Powerful sorcery, and the Wit (a sort of telepathic link with an animal companion, in Fitz's case a wolf) have allowed him to escape his enemies, but have left him badly shaken. From this low point, he must somehow recover to attain his destiny—which slowly becomes evident throughout the course of the book.

At first, Fitz believes that his only remaining purpose is to take revenge on Regal, the usurping prince who had killed his king and had nearly killed Fitz himself, all but destroying the kingdom in the process. Fitz soon learns that he is under a deeper compulsion: to find Verity, the legitimate heir to the kingdom, who has gone on a quest to find magical help in a distant land and who now calls to him through the Skill, another tele-

pathic sense that runs in the royal bloodline. This sends him on his most arduous quest yet, one that forces him to draw on everything he has learned—and to learn new things he never dreamed of.

At the end, Hobb delivers a highly satisfying conclusion to Fitz's career, bringing together threads from all that has gone before. The new characters we meet—and the old ones who reappear, often unexpectedly—are complex and interestingly drawn. Fitz spends a fair amount of time in introspection, but not so much that the plot drags; indeed, there is more than enough incident and action to keep a reader turning pages. And the major mysteries are solved, the important characters find their due rewards and punishments, and the balance of the world is set right again. Hobb has made a strong impact with the "Assassin" trilogy; a lot of readers will be waiting to see what her next project is.

REVISIONS: HOW SCIENCE WILL REVOLUTIONIZE THE 21st CENTURY

by Michio Kaku
Doubleday, $24.95 (hc)

Trying to foresee what science and technology will come up with after the year 2000 has always been a popular game for SF writers. As the actual turn of the millennium approaches, a more respectable group of soothsayers —including the likes of Freeman Dyson and other working scientists—have been taking their shots at prediction. This book, from a theoretical physicist, covers the ground with remarkable thoroughness.

Kaku, author of the best-selling *Hyperspace*, defines his central thesis in a few words: "our species is on the verge of changing our status from that of *passive observers of Nature to active choreographers of Nature* (italics in original)." He expects major breakthroughs in three specific areas—computer science, molecular biology, and quantum physics—to spur this transition. All these sciences essentially began in this century, and have produced results far beyond what their early prophets would have seen possible: for just one example, millions of households now have computers far more powerful and versatile than anyone could have built for any amount of money just fifty years ago.

Yet Kaku reports that his fellow scientists, many of whom he interviewed in the course of hosting a popular science radio show, believe that everything we have seen so far is merely a prelude to what lies in store. He points out that, while the development to date of these areas of science has been marked by extreme specialization, the twenty-first century is likely to be an age of synergy, in which each of them builds on the discoveries of the others. The quantum computer and the new microbiological technologies are both likely to be up and running within the lifetime of many readers of this column (and with luck, of the reviewer, as well).

Kaku begins his extrapolation

by looking at a twenty-year time frame. On that scale, he expects computer chips to become smaller, cheaper, and almost ubiquitous. Genetic therapy can be expected to cure many infectious and genetic diseases, possibly including most cancers. But beyond that point, further progress in both computer science and molecular biology is likely to depend on new breakthroughs, because of such fundamental constraints as an inability to further reduce the size (and thus the speed) of computer chips. The answers are likely to lie in the realm of quantum mechanics.

Once solutions are found, Kaku forecasts rapid progress in artificial intelligence (a robot in every home), tailor-made organisms (new foods and medicines), and nanotechnology. Kaku is aware of the potential downsides of these developments. He devotes careful examination to such issues as Big Brother turning the Internet into a snooping device, a revived eugenics movement now given the power to make its programs work, and the moral implications of cloning human beings. But if we can avoid these and other pitfalls, the human race has the potential to develop into a true planetary society, the first step toward the science fiction dream of making the entire universe our home.

With this far-seeing volume, Kaku establishes himself as a likely successor to the late Carl Sagan as a spokesman for the potential of science to change and enrich our lives.

BEYOND STAR TREK: PHYSICS FROM ALIEN INVASIONS TO THE END OF TIME

by Lawrence M. Krauss
Basic Books, $21.00 (hc)

Krauss scored a bestseller a couple of years ago with *The Physics of Star Trek,* which was at bottom a detailed deflation of the scientific howlers in TV shows that every scientifically literate fan enjoys pointing out. As the title of his new book indicates, Krauss has not stopped watching the tube or movies; he's back to tell us where *The X-Files, Independence Day,* and other popular media hits have missed the target.

But Krauss isn't just carping at the ignorance of TV writers and media fans. His real aim is to use these familiar shows as a means of teaching real science. So he begins with an examination of *Independence Day,* pointing out the film's failure to take note of basic Newtonian physics, especially the gravitational effects of the alien fleet's arrival. At a quarter the mass of our moon, the alien mothership's entry into Earth orbit would raise tides and cause earthquakes sufficient to wipe out our civilization without the aliens firing a shot.

The flight characteristics of UFOs (as portrayed on *The X-Files,* as well as in much of the UFO literature) also come in for skeptical investigation. A flying object capable of making the abrupt starts, stops, and high-speed turns ascribed to UFOs would generate G-forces greater than those of a close-range nuclear

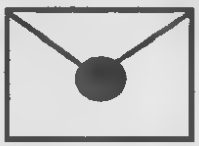
blast. The UFOlogists and TV producers have neglected to explain how the ships' pilots (not to forget the materials of which the ships are constructed) manage to survive such extreme stress. "Ye canna' change the laws o' physics. . . ."

Perhaps more provocative to SF fans (who may be as skeptical as anyone on the subject of UFOs) is Krauss's analysis of the probable costs of mounting an interstellar expedition. Krauss examines not only the energy requirements for a trip to a nearby star (say, Alpha Centauri), but the need to stock supplies (food, air, water, etc.) for a journey lasting many decades, with no convenient gas stations or supermarkets along the way. In an economy where a return visit to the moon is seen as too costly, financing a starship (with no tangible benefits to offer the taxpayers) is likely to remain out of reach for the foreseeable future.

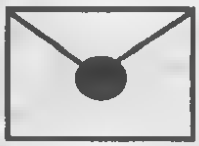
Don't make the mistake of dismissing Krauss as a sour-faced debunker, though. His affection for the shows he takes as examples is obvious. Like dozens of other scientists, he was clearly inspired to the study of real science (physics and astronomy, in his case) by an early exposure to SF. Like Michio Kaku, he affirms his belief that, sooner or later, our race will visit the stars and spread through the galaxy. Physics, far from being ready to close the books on the ultimate nature of reality, has only begun to explore its subject matter. And what we find may be far stranger than anything we have so far imagined—even those of us who read and write science fiction. ●

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NEXT ISSUE

MAY COVER STORY

Hugo, Nebula, and World-Fantasy-Award-winning author **Terry Bisson,** author of the famous "Bears Discover Fire," returns to our pages with a new story about gonzo genius and rogue scientist Wilson Wu (who was introduced here a few years back with the popular "The Hole in the Hole"). In this one, Bisson takes us on a wild, woolly, and wonderful tour of the City of New York in the company of Wu's hapless and long-suffering sidekick and his bride-to-be, who find Cosmic Forces bent against their intended nuptials, and, incidentally, threatening the integrity of the entire universe. Can Wu somehow defeat these sinister forces and answer his pal's plaintive demand to "Get Me To The Church On Time"...? He's sure going to try, even if he has to bend time and space to do so—and in the process Bisson provides us with a funny and richly imaginative screwball comedy that you're certainly not going to want to miss!

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Nebula- and World-Fantasy-Award-winner **Michael Swanwick** takes us to a bizarre high-tech future for an intense, compelling, and dangerous encounter between "Wild Minds"; new writer **Kage Baker** sweeps us along on a wild romp through time to meet a crazed hermit who is much more than he seems to be (and who has some very strange friends!), and to assure us that "Lemuria *Will* Rise!"; respected writer and editor **Michael Kandel** makes his Asimov's debut by spinning the poignant story of an ordinary man in a very unordinary situation, one who finds he has to somehow figure out how to deal with "Wading River Dogs and More"; acclaimed British writer **Ian Watson** takes us to a distant alien planet for a tale of passion and betrayal that takes place during "The Shortest Night"; and **Lawrence Person** returns after a long absence to offer us some intriguing and disturbing "Crucifixion Variations."

EXCITING FEATURES

Robert Silverberg's "Reflections" column returns with "A Voyage to the Far Side of the Moon, Part Two"; **Paul Di Filippo** brings us "On Books"; plus an array of cartoons, poems, letters, and other features.

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FEBRUARY 1998

27–Mar. 1—**ConDor.** For info, write: **Box 15771, San Diego CA 92175.** Or phone: **(800) 772-8527** (10 AM to 10 PM, not collect). Con will be held in: San Diego CA (if city omitted, same as in address) at the Town and Country Hotel. Guests will include: Turtledove, Brin, Pallmary, Potts, Swycaffer, Weber, Willson, Wu.

27–Mar. 1—**ConCave. (423) 239-3106.** Park Mammoth Resort, Park City KY. Bill Cavin. Low key.

27–Mar. 1—**KatsuCon.** Radisson, Alexandria VA (Washington DC). R. DeJesus, S. Bennett, R. Lantz. Anime.

28–Mar. 1—**SheVaCon. (540) 885-5530.** Ingleside Resort, Staunton VA. L. Elmore, C. S. Friedman.

28–Mar. 1—**MicroCon.** Devonshire House, Stocker Rd., Exeter, England.

28–Mar. 1—**Trek Promotion. (610) 454-1197.** Blaisdell Center, Honolulu HI. Crosby, Biggs, Prowse. Star Trek.

MARCH 1998

6–8—**SwilCon.** Swarthmore College, Swarthmore PA. J.P. Kelley, J.P. Hogan, J. Menges, G. Frost, M. Swanwick.

6–8—**ConTact. (415) 952-8436.** Biltmore Hotel, Santa Clara CA. Anthropology and SF.

6–8—**AntarctiCon. (800) 346-5666.** Seven Oaks Hotel, San Antonio TX. B. Dunn, F. Perry. Comics/anime.

12–14—**Life, the Universe, and Everything. Box 360, Orem UT 84059. (801) 375-3082.** BYU, Provo UT. Moon.

13–15—**OutWorld, 721 Pebble Creek Dr., Norcross GA 30093. (770) 339-9769. (AOL) outworldx.** Atlanta GA.

13–15—**CovenCon, 7410 W. 119th #113, Overland Park KS 66213. (800) 781-1714.** Kansas City MO. Horror/gaming.

13–15—**Earthstation, Box 771, Edmonton AB T5J 2L4. (403) 455-9315.** Coast Terrace Inn. O'Hare, deLancie.

14–15—**Corflu, 7 Woodside Walk, Hamilton ML3 7HY, UK. (E-mail) ian@soren.demon.co.uk.** Griffin, Leeds. Fanzines.

18–21—**IAFA, 500 NW 20, HU50/B9, FL At. U., Boca Raton FL 33431. (954) 475-6747.** Ft. Lauderdale FL. Academic.

20–22—**LunaCon, Box 3566, New York NY 10008.** Hilton, Rye Brook (New York) NY. Butler, Giancola, Boardmans.

20–22—**MidSouthCon, Box 11446, Memphis TN 38111. (901) 274-7355.** J. P. Hogan, Ledet, C. Johnson, P. Darrow.

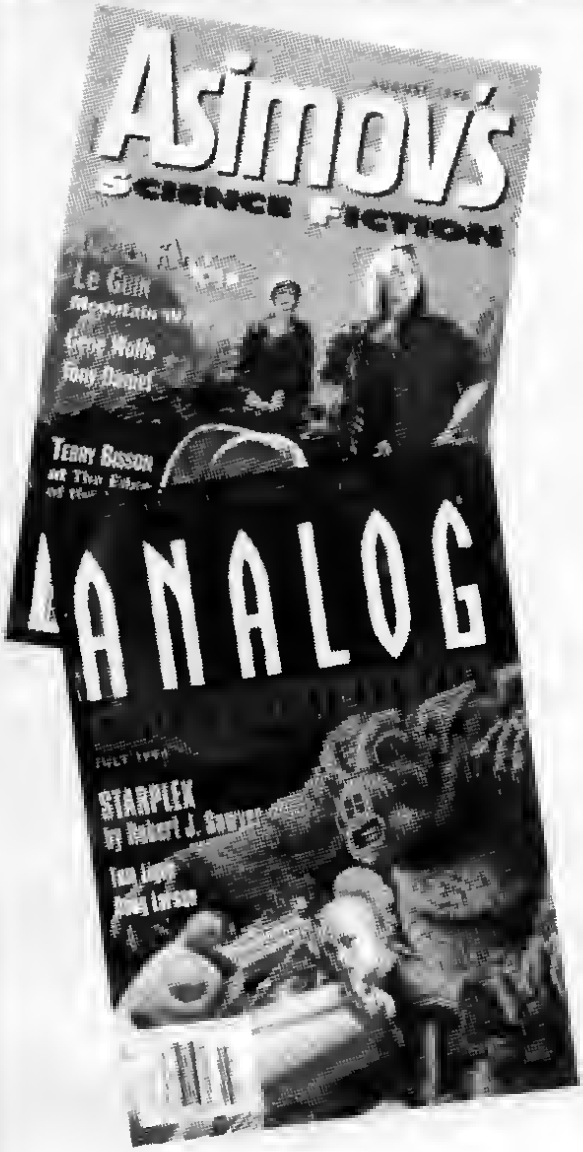
20–22—**TechniCon, Box 256, Blacksburg VA 24063. (Web) www.perspex.com/technicon.** Best Western Red Lion.

21–22—**SF Days, c/o Frantz, Ruthstrasse 8/28, Dortmund D-44149, Germany. (0049) 231 40 06 64.** Alan D. Foster.

AUGUST 2000

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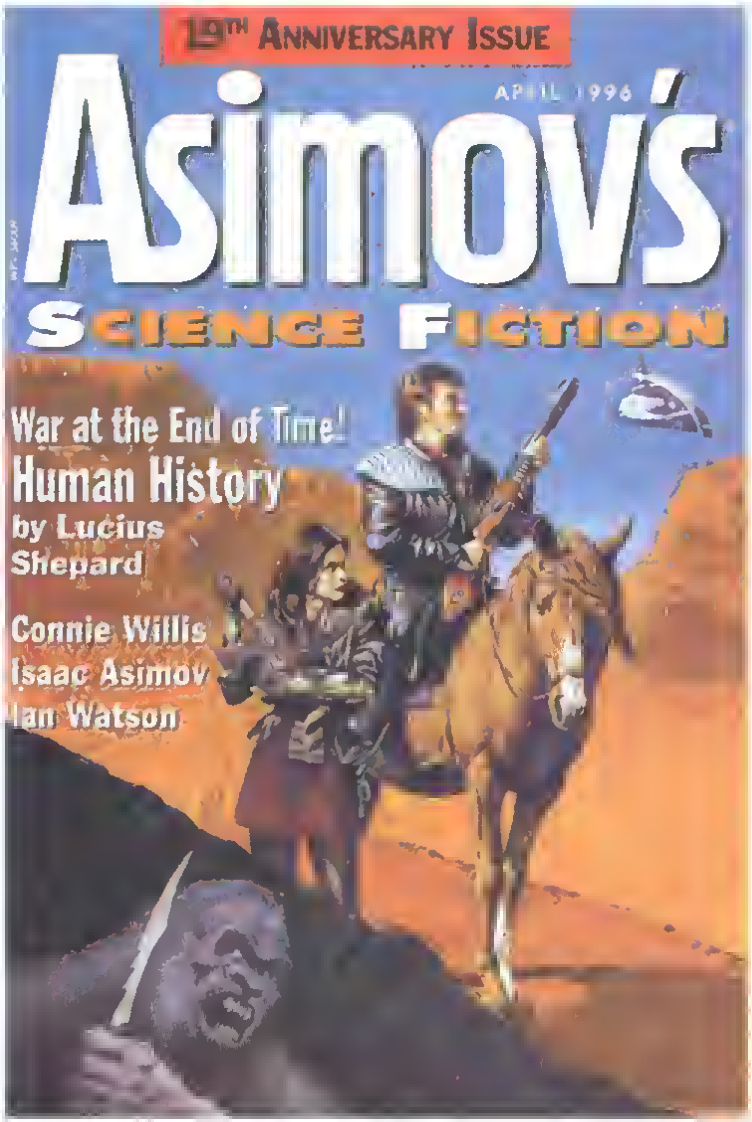
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